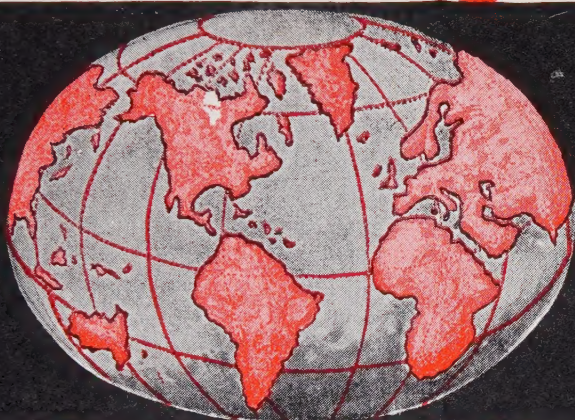


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METEOROLOGICAL ABSTRACTS AND BIBLIOGRAPHY

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METEOROLOGICAL ABSTRACTS AND BIBLIOGRAPHY is a monthly publication devoted to:

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METEOROLOGICAL ABSTRACTS AND BIBLIOGRAPHY

MALCOLM RIGBY, Editor

Vol. 7

JANUARY, 1956

No. 1



SPECIAL FEATURE IN THIS ISSUE

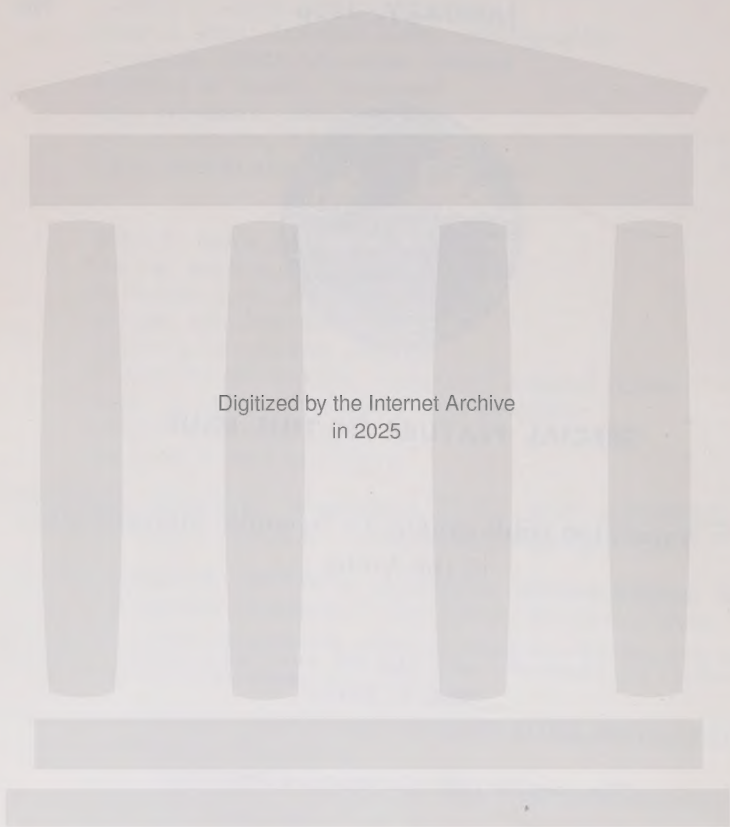
An Annotated Bibliography on Synoptic Meteorology
of the Arctic

by
Nina S. Zikeev

(For complete table of contents see back cover)

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EDITORIAL

1127 a

These thoughts, my dear friend, are many of them crude and hasty; and if I were merely ambitious of acquiring some reputation in philosophy, I ought to keep them by me, till corrected and improved by time and farther experience. But since even short hints and imperfect experiments in any new branch of science, being communicated, have oftentimes a good effect, in exciting the attention of the ingenious to the subject, and so become the occasion of more exact disquisition, and more complete discoveries. You are at liberty to communicate this paper to whom you please; being of more importance that knowledge should increase, than that your friend should be thought an accurate philosopher.

From: A Letter from Benjamin Franklin, Esq., of Philadelphia, to Peter Collinson, Esq.
R.S., London.

Philadelphia, September 1753

This paragraph, quoted from one of Franklin's famous letters setting forth his observations and theories on thunderstorm electricity, lightning and lightning rods, makes interesting reading, not only in view of the universal celebration of the 250th anniversary of his birth in January 1706, but also because of the fact that prompt scientific communication is as important, and as difficult, today as it was two centuries ago. The importance is self-evident, for accurate observations or original ideas may lie buried for years or decades unless made public properly through open communication. The difficulties are not so obvious. Means of communication are far more rapid and varied than in Franklin's day; but they are no more efficient! A series of letters such as Franklin wrote to his friend in England on his lightning and kite experiments had a good chance to be read by every scientist in the world within 2 or 3 years; whereas today in spite of television, radio, cables, air-mail, microfilm, facsimile and all the other aids to communication which make possible for information to disseminate to scientists in any place in 100 countries, or even on the Arctic or Antarctic Ice Caps within hours or days at the most, the same difficulties exist regarding language barriers, withholding of information for commercial or military reasons, editorial or academic resistance to unorthodox concepts, etc. in the eighteenth century. Even greater and almost insurmountable difficulties have arisen due to the tremendous volume of scientific literature (an increase of from 25 to 100 fold in the total, and from 100 to 1000 fold in the annual number of communications, from 1750 to 1950), and the resulting compartmentalization or specialization. A scientist today has very little chance to see, even if he can understand, communications in other disciplines, let alone in his own field if in a foreign language, and the volume of material makes it impossible for even the best of abstracting agencies to disseminate most of the results of the world's output in any one field in less than 12 to 18 months, and in many cases in less than 2 or 3 years.

In view of the importance of prompt dissemination, and of the growing backlog of unpublished abstracts in the files of Meteorological Abstracts and Bibliography (about 1000 items per year, making a total of about 6000 to date—at least half of which are in peripheral fields, however), a concerted effort has been made in the past year to publish a larger percentage of current abstracts from material originally published in the preceding 12 months. It should be realized that ordinary processing of material requires from 4 months (for U. S. and British publications) to a year (for South American, European, Asiatic, African or Australian material where it is from 2 months to a year after the date on the journal before it is even received for abstracting). Many regular journals are up to a year behind in publication, and many others do not come to our attention for a year or more.

In spite of the above "delay factor," the most serious obstacles to communication—language and insularity—have in Meteorological Abstracts and Bibliography been reduced to a minimum for a non-international abstracting journal.

Statistics based on >24,500 abstracts in Vol. I-V (1950-54) of MAB, show the following number and percent of abstracts of articles originally written in the respective languages:

1. English	58% (14,142)	5. Spanish	2% (534)
2. German	21% (5,244)	6. Italian	2% (418)
3. French	7% (1,646)	7. Japanese	2% (401)
4. Russian	5% (1,284)	8. Dutch	1% (214)

In addition, articles in over 20 other languages have been included in the abstracts. Each comprises less than 1% of the total:

9. Polish	(168)	16. Chinese	(18)	23. Bulgarian	(9)
10. Hungarian	(129)	17. Finnish	(15)	24. Greek	(8)
11. Czech	(111)	18. Serbian	(13)	25. Catalan	(7)
12. Swedish	(61)	19. Turkish	(13)	26. Hindi	(6)
13. Portuguese	(42)	20. Hebrew	(13)	27. Romanian	(4)
14. Norwegian	(39)	21. Danish	(12)	28. Slovakian	(2)
15. Croatian	(26)	22. Afrikaans	(9)	29. Latin	(1)

The above statistics do not accurately reflect the output in any given country, since many articles are published in foreign or international journals, and often in English, French or German rather than in the author's native language (in order to reach a wider audience).

In regard to a student's or a scientist's ability to read or understand the major portion of the world's meteorological literature, a little simple arithmetic will show that with a knowledge of English alone, one could read only a little over a half of the material abstracted; with knowledge of German alone, only 20%; with French or Russian alone, only about 10%; and with Spanish, Portuguese, Italian or Dutch, Polish, Norwegian, Swedish, Serbo-Croatian, Czech, Hungarian, Chinese or any other single language, less than 2% of the available material.

If, however, the research worker knows only 2 languages, he could cover the following proportion:

1. English and German	79%
2. English and French	65%
3. English and Russian	63%
4. English and Spanish	60%

and with 3 languages:

1. English, German and French	86%
2. English, German and Russian	84%
3. English, German and Spanish	81%

whereas with a knowledge of English, German, French, Russian, Spanish and Italian, at least 95% of the literature could be handled. The above does not presume fluency in these languages, but only a working knowledge of the basic idiom and the technical terms in his own field, plus a good technical dictionary.

It will be at least a decade before the vaunted translating machines will be able to handle even the most simple material. For highly technical translations, a knowledge of the language will always be essential, for even the technical glossaries, let alone the machines, are usually a decade or more behind the idiom of the science in one's own language, and two decades behind the idiom in polylingual (or even bi-lingual) lexicons. So a student starting out on a meteorological career would do well to spend 2 or 3 years learning one or two of the major languages other than his own. He should tackle the more difficult languages first (German or Russian) after which a working knowledge of French, Spanish or Italian would come fairly easily. If this seems like a lot of effort, it would be well to remember an analogy with TV reception—one cannot get clear reception from desired stations he buys and installs a better antenna. If a student wants to cut out the "noise" caused by the fact that half or more of the world's research is published in foreign languages he must take the effort and spend the money to "buy and install" the ability to cut through this "clutter" and get a clearer picture of what the author is trying to communicate. For the ability to discover new scientific facts is not now any more than it was in Franklin's day, confined to the cultural centers of the civilized world, but as often as not erupts in isolated places (like Philadelphia in 1750) or in a superficial, uncouth or provincial person such as B. Franklin, Esq.

MALCOLM RIGBY

FOREWORD

Meteorological Abstracts and Bibliography is a monthly publication whose purpose is to bring to the attention of meteorologists current literature in their field and in related fields and to provide bibliographic information on various subjects, as interest demands.

Part I contains abstracts of current literature in the fields of meteorology, oceanography, etc., arranged according to the Universal Decimal Classification.

Part II of each issue comprises a special annotated bibliography of important references on a special subject. No attempt is made to prepare exhaustive bibliographies; instead, the aim is to include a representative cross section of the various aspects of a subject.

Bibliographies published in the successive issues were:

Vol. I, 1950

- | | | | |
|---------------------|-------------------------|--------------------|------------------|
| 1. Atmos. Pollution | 2. Aerobiology | 3. Cloud Physics | 4. Hail |
| 5. Tornadoes | 6. Volcanic Dust | 7. Climat. Changes | 8. Thunderstorms |
| 9. Icing | 10. Acoust. Propagation | 11. Evaporation | |

Vol. II, 1951

- | | | | |
|------------------------|--------------------------|-------------------|------------------------|
| 1. Extended Forecast. | 2. Long Range Forecast. | 3. Soil Temp. | 4. Constants, etc. |
| 5. Clim. of Near East | 6. Clim. of Middle East | 7. Special Winds | 8. Radar Storm Detect. |
| 9. Condensation Trails | 10. Clim. of N.E. Africa | 11. Mountain Met. | |

Vol. III, 1952

- | | | | |
|-------------------------|----------------------|-----------------------------|-----------------------|
| 1. Clim. of N.W. Africa | 2. Carbon Dioxide | 3. Clim. of Argentina, etc. | 4. Dew |
| 5. Objective Forecast. | 6. Stratus Forecast. | 7. Urban Climatology | 8. Clim. of C. Africa |
| 9. Visibility | 10. Glaze and Rime | 11. Free Air Turbulence | |

Vol. IV, 1953

- | | | | |
|----------------------|--------------------------|---------------|-----------------------------|
| 1. Turbulence Theory | 2. Turbulent Diffusion | 3. Frost | 4. Clim. of Australia, etc. |
| 5. High Level Winds | 6. Winds in Stratosphere | 7. Jet Stream | 8. Radiation Bioclim. |
| 9. Clim. of Pacific | 10. Auroras | 11. Sferics | |

Vol. V, 1954

- | | | | |
|--------------------|------------------------|--------------------------|--------------------|
| 1. Oceanog. Met. | 2. Clim. of S.E. Asia | 3. Auroral Physics | 4. Tropopause |
| 5. Balloons | 6. Numerical Forecast. | 7. Radiation Data | 8. Vertical Motion |
| 9. Clim. of Arctic | 10. Industrial Met. | 11. Wind Waves and Swell | |

Vol. VI, 1955

- | | | |
|--------------------------|------------------------------|------------------------------|
| 1. Bibliog. of Bibliog. | 2. Texts & Monogr. Bibliogs. | 3. Storm Surges |
| 4. Ionospheric Prop. | 5. Photochem.—Upper Atmos. | 6. Cloud Physics |
| 7. Radar Cloud Physics | 8. Atmos. Nuclei (1841–1950) | 9. Atmos. Nuclei (1951–1955) |
| 10. Weather Modification | 11. Cooling Power | |

Bibliography published this year is:

1. Synoptic Meteorology of the Arctic, Vol. 7, No. 1, Jan. 1956

Forthcoming bibliographies will be:

2. Climate of Enclosed Spaces, Vol. 7, No. 2, Feb. 1956
3. Cosmic Rays in the Atmosphere, Vol. 7, No. 3, March 1956

Other bibliographies in preparation are:

<i>Actinometers</i>	<i>Ozone</i>
<i>Climate of the Arctic</i>	<i>Singularities</i>
<i>Fog Forecasting</i>	<i>Snow Cover</i>
<i>Indoor Climatology</i>	<i>Synoptic Aerology</i>
<i>Microwave Propagation</i>	<i>Tropical Cyclones</i>
<i>Night Airglow</i>	

Part III contains a listing of the contents of those journals which are primarily meteorological. These are published in the earliest issue where space permits.

Part IV is made up of author, subject and geographical indexes. In the December issue cumulative author, subject, geographical and journal indexes are published.

EXPLANATIONS

Location of material: For each entry, a symbol is given for at least one library where the material may be found. The Union List of Serials (Gregory) is the source of most of the symbols used. In some cases, where no symbol has been assigned to a library, one will be devised according to the principles of the Union List.

Library symbols used frequently may be found in the following list:

DA:	U. S. Dept. of Agriculture Library, Washington, D. C.
DBS:	U. S. Bureau of Standards Library, Washington, D. C.
DGS:	U. S. Geological Survey Library, Washington, D. C.
DLC:	Library of Congress, Washington, D. C.
DN-HO:	U. S. Navy Hydrographic Office Library, Suitland, Md.
DSG:	U. S. Army Medical Library, Washington, D. C.
DSI:	Smithsonian Institution Library, Washington, D. C.
DWB:	U. S. Weather Bureau Library, Washington, D. C.
GB-MO:	Great Britain, Meteorological Office Library, Harrow, England.
MH-BH:	Harvard University, Blue Hill Observatory Library, Milton, Mass.

Other symbols:

*	before an entry indicates a good data source.
†	before an entry indicates a good bibliography.
§	before an entry indicates a synoptic case history study accompanied by charts.

Geographic locations are in the English form rather than the form used locally, for example, Moscow for Moskva.

Titles of articles or monographs are in the language of the original article unless otherwise stated. Slavic (Cyrillic) titles are transliterated into the Roman alphabet according to the Library of Congress transliteration scheme.

Abbreviations:

Titles of periodicals are not abbreviated, as a rule.

The months of the year from March to July are not abbreviated. Other months are abbreviated as Jan., Feb., Aug., Sept., Oct., Nov., and Dec.

The word or abbreviation for Volume (Tom, Band, Jahrgang, Año, etc.), for Number (Heft, Fascicule, Vypusk, etc.) and for page or pages is omitted from most entries. Thus an entry will read as follows:

Meteorologische Rundschau, 2(5/6):146-151, May/June 1950.

This indicates that the article appeared in *Meteorologische Rundschau*, Jahrgang 2 (Vol. 2), Heft 5/6 (No. 5/6), pages 146-151, May/June 1950.

PART I. ABSTRACTS OF CURRENT METEOROLOGICAL MATERIAL

MAJOR GENERAL WORKS

COLLECTED WORKS

See also: *Proceedings of meetings* (I.U.G.G., Assoc. of Meteorology), 7.1-39.

7.1-1

551.510.42:620.92:539.1

†U. S. Weather Bureau, **Meteorology and atomic energy**. Prepared for the U. S. Atomic Energy Commission. Wash., D. C., July 1955. 169 p. numerous figs. (incl. photos), 12 refs. Price: \$1.00 from U. S. Govt. Print. Off., Wash., D. C. **DWB**—During the past or 7 years an enormous amount of effort and expense has gone into the study of "stack meteorology" and the "micrometeorological tower" has become today as standard equipment. Balloon sounding stations were 40 years ago. Much of the material coming from these efforts has been distributed to a limited audience so that research workers and students in general could not make use of this rich source of empirical data. It is fortunate that a number of those most actively engaged in this field have had the chance to put into one publication the most important findings of the past decade. This is the first major monographic contribution summarizing theoretical, observational and empirical knowledge of air pollution problems connected with atomic energy production and experimentation. Four separate references by the Atomic Energy Commission and by F. W. REICHELDERFER, HARRY WEXLER and DONALD H. PACK of the U. S. Weather Bureau, respectively, are included. The major part of the writing, as well as the major introduction, were the work of the latter though several others (FRANK GIFFORD, P. A. HUMPHREY, L. MACHTA, F. D. WHITE to name a few) contributed materially to this excellent publication. The separate chapters treat the following subjects: 1) air pollution aspects of the atomic energy industry; 2) meteorology in site operations; 3) meteorological fundamentals for air pollution study; 4) an outline of atmospheric diffusion theories; behavior of 5) stack effluents; 6) explosion debris clouds; 7) fallout, ashout and rainout from airborne clouds; 8) radioactive cloud dosage calculations; 9) graphical solutions to atmospheric diffusion problems; 10) reactor hazard analyses; 11) meteorological equipment and records; 12) climatological data for site selection and planning. The appendix contains a selected list of parameters, equations and conversion factors, and a list of 152 references to recent literature (mostly 1949-1954) on the above subjects, plus a subject index. A wealth of illustrative photographic material, charts, maps, sample forms, diagrams and tables add to the value of this work. *Subject Headings*: 1. Atomic energy meteorology 2. Radioactive waste dispersion 3. Atmospheric pollution disposal 4. Stack meteorology. Pack, Donald H. II. Reichelderfer, F. W. III. Wexler, Harry IV. U. S. Atomic Energy Commission.—M.R.

7.1-2

551.5:016

†Shaw, Sir William Napier, **Selected meteorological papers**. London, Macdonald, 1955. 100 p., figs., tables, refs., eqs. throughout. Bibliography, compiled by E. E. Austin and Joan Williams, of 381 items, arranged chronologically. **DWB**. Review by R. C. Sutcliffe, in *Royal Meteorological Society, Quarterly Journal*, 81(349):527, July 1955. **DWB**—This volume contains a selection from the lectures, addresses, essays and scientific articles of Sir W. Napier Shaw, which are either out of print or not readily accessible. The contents are as follows: The life history of surface air currents; A study of the surface trajectories of moving air; The law of sequence in the yield of wheat for eastern England; Meteorology and wheat shortage; Barometric gradient and wind force; The variations of currents of air indicated by simultaneous records of the direction and velocity of the wind; Beaufort scale of wind force; Hints

for meteorological measurement; Principia atmospherica; A study of the circulation of the atmosphere; The travel of circular depressions and tornadoes and the relation of pressure to wind for circular isobars; The birth and death of cyclones; The convective energy of saturated air in a normal environment; Note on the graphic representation of pressure and temperature obtained from observations by balloons, aeroplanes or kites; The book of the grower's year; and The march of meteorology. The book contains also a portrait of SIR W. NAPIER SHAW and a bibliography of his works. *Subject Headings:* 1. Collected works of Sir William Napier Shaw 2. Meteorology bibliographies. I. Austin, E. E. (comp.) II. Williams, Joan (comp.) —I.L.D.

7.1-3

551.501:551.578.4:551.311.1

Japanese Society of Snow and Ice [Nihon-Seppyo-Kyokai], *Seppyo Zyu-nen*. [Ten years of snow and ice study.] Tokyo, Tokai Book Co., Ltd., 1949. 241 p. 5 figs., tables. **DLC**—Results of ten years of study on snow and ice by this organization are reviewed by its staff members. It contains the meteorology of snow and ice; physics of ice and snow cover; traffic over snowfall; effects of snow and ice on civil engineering, hydro-electric plants, forestry, botanical and human life, especially health, sports and commercial or industrial activities. The 17 chapters are as follows: 1. Meteorology by H. Hatakeyama and T. Yoshisaka; 2. Ice by I. Imai and M. Kuroda; 3. Ice accretion by I. Imai; 4. Ice in sea, river and lake, by S. Morii; 5. Structure and transformation of snow cover by M. Kuroda; 6. Physical properties of snow cover by M. Kuroda; 7. Mechanical properties of snow cover by M. Kuroda; 8. Avalanches and snow cornice by M. Kuroda; 9. Traffic problem over snow by N. Hyoto; 10. Snow fence for rail-road by I. Furukawa; 11. Civil engineer by K. Kimura and T. Yoshisaka; 12. Electric service by S. Seki; 13. Forestry by T. Shidei and Y. Saito; 14. Plant life by M. Fujibayashi; 15. Social life by T. Totsuka; 16. History of winter sports by K. Yamashita; 17. Economical life in the districts with deep snow cover by T. Onuma. *Subject Headings:* 1. Snow and ice research 2. Japan. I. Kuroda, M.—H. Arakawa.

7.1-4

631.4:69:551.525.5

National Research Council, Canada. Associate Committee on Soil and Snow Mechanics. **Soil mechanics papers presented at the Building Research Congress, 1951.** Reprinted by Permission from the Proceedings of the Congress. Its *Technical Memorandum*, No. 25. Nov. 1952. p. 139-189. illus., tables, refs. Contents: Terzaghi, Karl, *Influence of modern soil studies on the design and construction of foundations*, p. 139-145. Harding, H. J. B. and Glossop, R., *Influence of modern soil studies on the construction of foundations*, p. 146-156. 7 figs., table, 37 refs. Cooling, L. F., *Some foundation problems in Great Britain*, p. 157-164. 9 figs., 14 refs. Legget, Robert F., *Special foundation problems in Canada*, p. 165-172. 8 figs., 9 refs. Huizinga, T. K., *Application of results of deep penetration tests to foundation piles*, p. 173-179. 9 figs., 3 tables, 19 refs. Skempton, A. W., *Bearing capacity of clays*, p. 180-189. 8 figs., 4 tables, 43 refs. **DWB**—Paper by LEGGET gives chart showing geological structure and southern limit of permafrost and another showing average annual minimum temperature in Canada. The climate of Canada, permafrost and frost penetration in Canada as affecting building construction, are discussed. *Subject Headings:* 1. Permafrost research 2. Frost penetration in soil 3. Soil properties 4. Building construction 5. Canada. I. Building Research Congress, London, Sept. 11-20, 1951.—M.R.

7.1-5

551.510.42:620.92:539.17:061.3

†Sanitary Engineering Conference, Chicago, 1952, *Proceedings*. U. S. Atomic Energy Commission, WASH-129, Sept. 11, 1952. 189 p. figs. (incl. photos), tables, bibliogs., foot-refs. Two articles of interest: No. 21, White, Fred D., *Weather Bureau and the Atomic Energy Commission*, p. 136-142. No. 22, Humphrey, Paul A., *Brief discussion of the meteorological program at the National Reactor Testing Station, Idaho, with emphasis on the atmospheric dust program currently in progress*, p. 143-154. 5 figs. (incl. photos). **DWB**—One of the purposes of the Sanitary Engineering Conf. was to obtain information on environmental factors such as hydrology, geology and meteorology in the vicinity of existing or proposed Atomic Energy Commission production and research areas, in order to properly locate, design and build facilities and structures and to assure their safe operation. Several

papers of interest to meteorologists were presented and are abstracted separately. *Subject Headings:* 1. Atomic energy production 2. Atmospheric pollution studies 3. Radioactive waste dispersion. I. U. S. Atomic Energy Commission.—*M.R.*

TEXTBOOKS

7.1-6

551.556:6(023)

†Aubert de la Rüe, E., **Man and the winds**. Trans. by Madge E. Thompson from *L'homme et le vent*. London, 1955. 206 p. 26 plates, 74 refs. **GB-MO**—This book, written in popular style, deals successively with: types and names of winds; regime winds and accidental [i.e., local] winds; föhn; hurricane winds; winds as a determining factor of climate; physiological effects of the wind; adapting dwellings to the wind; the wind as a transporting agent; landstorms; soil erosion by wind; the peril of dunes; the wind as a source of energy; sailing ships; the study of the winds; the wind and aviation; benefits and drawbacks of the wind; the protection of cultivated land and forests; mythology and legend. *Subject Headings:* 1. Winds 2. Wind effects 3. Popular meteorology. I. Thompson, M. E. (transl.).—*C.E.P.B.*

7.1-7

551.46:529(02)

†Pettersson, Hans, **The ocean floor**. New Haven, Yale Univ. Press, 1954. 181 p. 48 figs., table, bibliog. p. 167-174. *Yale University. Mrs. Hepsa Ely Silliman Memorial Lectures.* **DLC**—The age of the earth, of various sediments in the oceans, etc. can be determined from radioactive materials found in bottom samples and deep waters collected on oceanographic cruises. Evidence of climatic conditions in geological time can be deduced therefrom. The present text takes up in order: history and description of oceans, methods of investigation of ocean floor, oceanic expeditions, sediments and deep sea deposits, radium content and geochronology, bottom waters and their movements, and life at great depths. Charts include one on bottom circulation and features of Atlantic, Antarctic, Pacific and Indian oceans, a map of oceans in geological periods, and one of vertical circulation of oceans. *Subject Headings:* 1. Marine geology 2. Geochemistry 3. Geochronology 4. Ocean floors 5. Radioactive dating methods 6. Textbooks.—*M.R.*

7.1-8

551.508.822(02)

†Beelitz, Paul, **Radiosonden**. [Radiosondes.] Berlin, VEB Verlag Technik, 1954. 136 p. numerous figs. (incl. photos), 19 tables, 85 refs., 21 eqs. **DLC**—In 1938, L. WEICKMANN, as President of the I.M.O. International Aerological Commission, published a monograph describing all (up to that time) types of radiosondes used in the world. The subject has become much more complicated due to the vast increase in use of radiosondes during the second World War. This book represents an attempt to summarize technical knowledge of this important subject up to 1954. The treatment is very systematic. Pt. 1 deals with methods of upper air observation (from ground and from aircraft); Pt. 2, the aerological measurements, temperature, humidity, pressure, upper air winds; Pt. 3, distant recording techniques (types of radiosonde telemetering and rocket-radiosondes); Pt. 4, aerological balloons (rubber, hydrogen, etc.); Pt. 5, balloon radiosonde ascents (calibration, ground checks, release, evaluation, wind aloft measurements with radiosondes, recovery of radiosondes); and Pt. 6, evaluation of upper air observations for synoptic forecasting. A good bibliography is appended. Technical details are shown in diagrams, photos, etc. The historical sketch on aerological soundings going back to FRANKLIN (1752) and ESPY (1834) and their kite experiments, or to even earlier balloon and mountain measurements, is quite valuable. Recent innovations such as electric hygrometers, latex and other synthetic balloons, rocket and parachute soundings, radar and acoustical soundings are mentioned. No account is given of the transosonde, international radiosonde comparisons, the Japanese radiosonde and a few other more recent developments. *Subject Headings:* 1. Radiosondes 2. Upper air observation techniques 3. Textbooks 4. Instrument textbooks 5. Manuals.—*M.R.*

7.1-9

551.5(023)

Benstead, C. R., **The weather eye: an irreverent discourse upon meteorological lore, ancient and modern, with many indiscreet references to the art of forecasting as now practised.**

3rd ed. London, R. Hale Ltd., 1954. 190 p. 23 figs., 9 plates. Price: 12s/6d. **DLC**—Ch. 1 of this cheerful and informed book deals with weather proverbs and official forecasts; Ch. 2, the barometer and "weather glass," leeches, blow wells and weather charts; Ch. 3, the structure and composition of the atmosphere; Ch. 4, the meaning of clouds; Ch. 5, rain, rainbows, etc; Ch. 6, thunderstorms; Ch. 7, winds and air masses; Ch. 8, depressions; and Ch. 9, anticyclones. In chs. 10 and 11 the "art of forecasting" is dealt with light-heartedly. Ch. 11 describes local winds and Ch. 12 ("the larger lunacy") signs drawn from the moon, sunrise and sunset, aurora, etc. The book, which is enlivened by fine cloud photos and many quotations, ends appropriately with the *double entendre*: "Hark! I hear the asses bray: We shall have some rain to-day." *Subject Headings*: 1. Weather forecasting 2. Weather lore 3. Popular meteorology.—C.E.P.B.

7.1-10

551.46(02)

Pettersson, Hans, **Oceanografi. Vetenskapen om havet.** [Oceanography. Science of the sea.] Stockholm, Bonnier, 1939. 274 p. 100 figs. (incl. photos), bibliog. p. 267. *Orientering i aktuella ämnen*, ed. by Knut Tynell. **DLC**—An elementary technical textbook on various aspects of oceanography, in the Swedish language. Chapters on: oceans and depths, bottom conditions, physical and chemical properties of the oceans, salinity, submarine illumination and color of the sea, ice, waves, submarine observations, tides, currents, submarine currents and waves, and marine biology and productivity are well illustrated with photographs and cross sections. The chapter on ice is particularly good. *Subject Headings*: 1. Oceanography textbooks 2. Sea ice 3. Textbooks. I. Tynell, Knut (ed.).—M.R.

7.1-11

551.579(02)

Goliatin, V. K., **Sostavlenie gidrologicheskikh ezhegodnikov.** [Preparation of hydrological yearbooks.] Edited by V. V. Ukhanov. Leningrad, Gidromet. Izdat., 1951. 223 p. 25 figs., 32 tables (some fold.), 21 refs. **DLC**—This manual has been compiled in accordance with the course in preparation of hydrological yearbooks for students of hydrometeorological technical schools. It is intended as a supplement to regular courses of hydrometry where details and methods of processing hydrological observations are usually lacking or incomplete. The manual contains a series of definite instructions for processing material and the preparation of hydrological yearbooks. It is divided into the following 15 chapters: 1 and 2, Organization of the study of the hydrological regime and preparation of the yearbook for printing; 3. Daily water levels; 4. Characteristics of the water level and of ice phenomena; 5. Water temperature; 6. Thickness of the snow and ice cover; 7. Measurement of runoff in rivers; 8. Daily runoff; 9. Annual characteristics of runoff; 10. Measurement of suspended and transported particles; 11. Mean discharge of suspended and transported particles; 12. Mechanical (granulometric) composition of alluvial and bottom sediments; 13. Chemical composition of water; 14. Corrections and supplements to previous editions; 15. Preparation of the yearbook for publication. *Subject Headings*: 1. Hydrological yearbook preparation 2. Manuals.—A.M.P.

7.1-12

551.596.1(02)534

Krasil'nikova, V. A., **Zvukovye volny v vozdukhe, vode i tverdykh telakh.** [Sound waves in air, water and solid bodies.] 2nd rev. ed. Moscow, Gos. Izdat., 1954. 439 p. 291 figs. (incl. photos and port.), table, 18 refs., eqs. **DLC**—A comprehensive and popular text on the propagation of sound and ultra sonic waves in the air (atmospheric acoustics), in water (hydro acoustics) and in the earth (seismology) and their utilization. All questions are treated on the basis of the most recent advances in modern acoustics. Ch. 1 deals with Vibrations and waves; Ch. 2, Sound waves in the air; Ch. 3, Receivers and emitters, Oscillographs; Ch. 4, Experiments with sound, sound analysis (speed, temperature effect, propagation, interference, dispersion); Ch. 5, Ultra sonic air waves (shock and explosion waves); Ch. 6, Propagation of sound in enclosed spaces and in the free atmosphere; Ch. 7, Sound and ultra-sonic waves in water (sound of the sea); Ch. 8, Sound and ultra-sonic waves in solid bodies; and Ch. 9, Propagation of elastic waves in the earth's crust. The manual is intended for high school teachers, college and technical school students, engineers and hydro-acousticians. *Subject Headings*: 1. Acoustical propagation 2. Textbooks.—A.M.P.

7.1-13

551.509.8(04)(493)

†Dufour, Louis (Belgian, Met. Service), **La météorologie populaire en Belgique**. [Popular meteorology in Belgium.] 10th ed. Brussels, J. Lebègue, 1946. 123 p. illus., foot refs., bibliog. p. 115-119. (Collection Nationale, No. 43.) **DWB**—This book (first ed. 1944) is based on several thousand weather maxims, many of which are quoted and commented on. The weather maxims are arranged by chapters according to their relationship to the sun, moon, planets, stars, various weather phenomena, the behavior of animals, the calendar, etc. The author also gives a brief summary of meteorological conclusions reached in prehistoric times and throughout the history of the Greek and Arabic peoples. A document from the 16th century containing HENRI DE FINE's weather prophecies is partly reproduced. Weather lore in Belgium is compared with similar lore in Germany, France and England. An ample bibliography (also arranged by country of origin), especially complete for Belgium sources, is appended. Translation into Flemish by Alex D. Broekhuysen, under title, **Onze Volksche Weerkunde Spreuken en Gezegden over het Weder**, appeared in 1945(?) published by A. Manau, Brussels. 179 p. illus., 61 refs. *Subject Headings*: 1. Weather lore 2. Popular meteorology 3. Belgium.—G.T.

7.1-14

551.579.5:631.6 631.6(02)

†Cherkasov, Aleksandr Alekseevich, **Melioratsiia i sel'skokhoziaistvennoe vodosnabzhenie**. [Conservation and water supply for agriculture.] 3rd ed. Moscow, Gos. Izdat. Sel'skokhoziaistvennoi Lit., 1950. 536 p. 231 figs., 151 tables, refs., eqs. **DLC**—In this book on irrigation and conservation of moisture in the soil, there are chapters on various types of irrigation, including sprinkling on a large scale. On p. 190-192 is given a method of calculating the intensity of rainfall, from drop size distribution, etc. Prevention of soil erosion, salting, leaching and loss of soil moisture are also considered in detail. *Subject Headings*: 1. Soil moisture conservation 2. Drop size distribution 3. Irrigation 4. Irrigation textbooks.—M.R.

7.1-15

91(282.24)(02) 551.582(47)

*†Mil'kov, F. N., **Srednee Povolzh'e: fiziko-geograficheskoe opisanie**. [Middle Volga: physico-geographical sketch.] Moscow, Izd-vo Akademii Nauk SSSR, 1953. 261 p. 42 figs., 18 tables, bibliog. p. 246-253. At head of t-p: Akademiia Nauk SSSR. Institut geografii. **DLC**—In the chapter on climatic conditions of the Middle Volga (p. 59-95), the annual course of solar radiation, radiation balance, temperature, rain and snowfall, evaporation, and water deficit are first described and illustrated, emphasizing local variations with ample table and charts. Then the characteristics of the seasons, phenological events, thunderstorms, droughts, cloudiness and climatic regions are treated. Finally, rivers, lakes, ground water and hydrologic regions are covered in other chapters which treat of orography, geology, geomorphology, soil cover, forests, animals and landscape zones. *Subject Headings*: 1. Climate Middle Volga Region 2. Geography textbooks 3. Middle Volga, U.S.S.R.—M.R.

7.1-16

551.5:629.13(02)

Babikov, Maksim Alekseevich, **Letecká meteorologie**. [Aviation meteorology.] Prague, Vojenské Vojensko, 1953. 203 p. 188 figs., 3 tables, eqs. *Velká Vojenská Knihovna*, No. 10. **LC**—Pt. 1 of this meteorological textbook for aviators is a free translation of his **Aviatsionnaia meteorologiia** (see item 4.4-1, April 1953, *MAB*). Structure and composition of the atmosphere, dynamic processes, clouds, air masses, fronts, general circulation and the use of synoptic charts are discussed. Many illustrative diagrams are presented for an easy understanding of physical processes in the atmosphere. Pt. 2 of the book contains information on icing, thunderstorms and fog as affecting airplane operations, with practical advice for the pilot. The chief merit of this book appears to be that it gives technical information in an easily readable manner. *Subject Headings*: 1. Aeronautical meteorology textbooks. I. Červený, Vladislav II. Jilek, Josef.—G.T.

7.1-17

551.509.4(02)

Laird, Charles and Laird, Ruth, **Weathercasting**. Englewood Cliff, N. J., Prentice Hall, 1955. 163 p. 54 figs. (incl. photos), 9 code tables. **DLC**—A "popular science" book for the

amateur who wants to establish a home observatory, or to learn to observe, record and even forecast the weather, with a chapter on **Instruments** showing construction of instrument shelter, nephoscope, rain gage, anemometer and wind vane mechanisms, barometer, sling and motor-driven psychrometer. Useful tables for conversion, coding (or decoding) weather messages and entering data on maps, etc. are included along with sample forms for records. *Subject Headings:* 1. Amateur weather textbooks 2. Elementary meteorology 3. Popular science books.—M.R.

7.1-18

551.586:61(98)

†Eisberg, H. B. and Owens, J. E., **Fundamentals of Arctic and cold weather medicine and dentistry**. Wash., D. C., Bureau of Medicine and Surgery, Research Div., [1949.] 204 p. numerous illus., plates, figs., tables, bibliog. p. 163-168, append. **DLC**—The first part of the book (p. 1-168), **Arctic and cold weather medicine**, is by EISBERG. It contains: environmental sketches of Alaska, Greenland and the Canadian Archipelago, list of animals and tables and drawings of edible and poisonous plants; environment sanitation including waste disposal, water supply, clothing and rations; effects of extreme cold on medical supplies and equipment; evacuation and treatment of casualties under Arctic conditions; medical problems; problems of survival and rescue, etc. The bibliography contains 118 items. Part II. (p. 169-204), **Arctic and cold weather dentistry**, by OWENS, deals with problems of dental treatment afloat and ashore. *Subject Headings:* 1. Arctic medicine 2. Arctic dentistry 3. Arctic climates.—M.L.R.

7.1-19

551.5(04)

Pollog, Carl Hanns, **Das Wetter**. [The weather.] Freiburg im Breisgau, Herder, 1929. 178 p. 28 figs. **DLC**—This book is about the weather for the layman, not about meteorology, although the author is obviously well grounded in historical, dynamic, synoptic and practical meteorology. He takes up, in a semi-popular style, air masses, fronts, turbulence, thunderstorms, tornadoes, icing, graupel, hail, clouds, rain, snow, winds of all kinds and, in addition, the history of the weather map, of international meteorology, codes and map analysis, proverbs and forecasting from weather types, etc. *Subject Headings:* 1. Meteorology 2. Popular science books.—M.R.

7.1-20

551.586:631 551.58

Pavlov, Nikolaï Vasil'evich, **Klimat i zhizn'**. [Climate and life.] Moscow, 1940. 78 p. *Nauchno Populiarnaiia Biblioteka*. **DLC**—A pocket size text covering the current knowledge on climate in relation to vegetation at various altitudes, latitudes, distances from the sea and in different epochs (historical and geological). The subject of climatic change, especially as related to plant and forest boundary movements, is given special attention (i.e. the effect of the changes in the Gulf Stream, or the warming of the Arctic). Artificial changes in climate (irrigation, drainage, snow conservation, forest practice, etc.) are also treated at some length with respect to conditions in the U.S.S.R. *Subject Headings:* 1. Plant climatology 2. Climatic changes 3. Artificial microclimates 4. Agricultural climatology 5. Textbooks.—M.R.

7.1-21

551.511(02) 551.585(02)

Toscano, Ricardo, **Meteorología descriptiva y dinámica: climatología, para el curso de la Escuela de Ingeniería de la Universidad Nacional Autónoma de México**. [Descriptive and dynamic meteorology: climatology, for the course in the Engineering School of the National University of Mexico.] Mexico City, Imprenta Universitaria, 1950. 200 p. 73 figs., 9 tables, diagrs., bibliog. p. 5-6. **DLC**—This textbook is a condensed work on dynamic and aerological meteorology with some practical descriptive meteorology, pilot balloon and radiosonde observations (such as the elements of cloud observation) and a rather full treatment of 3 systems of climatic classification: THORNTHWAITE's, DE MARTONNE's and KÖPPEN's (with numerical examples). Another section takes up forecasting from thermodynamic and synoptic charts (air masses, fronts, geostrophic winds, trajectories of air particles and movements of isobaric centers). Some of the standard sources referred to are as recent as 1946. *Subject Headings:* 1. Dynamic meteorology 2. Climatic classifications 3. Textbooks.—M.R.

MONOGRAPHS

7.1-22

551.582(59)

*U. S. Air Force. Tokyo Weather Central, **Weather and climate of Indochina**. 1st ed. Tokyo, June 1954. 101 p. 23 figs., 22 tables. DWB—A nice job of analyzing and presenting graphical and tabular form all of the available climatic data for Indochina. The general winter and summer monsoonal flow over the country are illustrated by air flow charts. The rain, mist and typhoons are then discussed. The separate climatic regions and climatic elements (temperature at surface and aloft, relative humidity, precipitation, % cloud cover, visibility, haze, flying weather, surface winds and winds aloft) are described and illustrated. Most of the data are presented in the form of histograms for a dozen stations or more, giving a picture of the seasonal as well as regional variation in elements treated. Finally, the raw data are presented in 22 tables. Period of record involved in analysis varied from 4 to 33 or 44 years. *Subject Headings*: 1. Climate of Indochina 2. Aeronautical climatology 3. Indochina.—M.R.

7.1-23

551.573:551.481

Kohler, M. A.; Nordenson, T. J. and Fox, W. E., **Evaporation from pans and lakes**. U. S. Weather Bureau, *Research Paper*, No. 38, May 1955. 21 p. 7 figs., 6 tables, 18 refs., 7 eqs. DWB—The empirical relationships for converting pan evaporation to lake evaporation which were used in the past (0.7 pan coefficient) give erroneous results unless advection energy and heat transfer through the pan are considered. Comparison of Lake Heffner relations with data from 8 other places in the U. S. show excessive bias (8 or 9%) in the deep South. An improved set of nomograms leads to reduced error. Annual lake or reservoir evaporation is treated in Pt. 2 of this monograph. Computation, all parameters of stations, and calculated water budget and lake evaporation in inches are tabulated according to a number of methods. *Subject Headings*: 1. Evaporation from water surfaces 2. Evaporation formulas 3. Lake Heffner, Okla.—M.R.

7.1-24

551.577.37(756,795)

*U. S. Weather Bureau, **Maximum station precipitation for 1, 2, 3, 6, 12 and 24 hours**, Pt. 11, North Carolina. *Its Technical Paper*, No. 15 [Pt. 11], 1955. 81 p. almost entirely tables. Also Pt. 12, Oregon 1955. *Ibid.*, No. 15 [Pt. 12]. 106 p. almost entirely tables. Also Pt. 13, Kentucky, Sept. 1955. *Ibid.*, No. 15 [Pt. 13]. 71 p. almost entirely tables. Also Pt. 14, Louisiana, Oct. 1955. *Ibid.*, No. 15 [Pt. 14]. 53 p. almost entirely tables. All DWB—In Pt. 11, data for 67 stations in North Carolina, and in Pt. 12, data for 92 stations in Oregon, for 11 year period 1940-1950, are tabulated, and extreme values for each period (1, 2, 3, 6, 12 and 24 hours) plotted on separate charts. Extreme amounts for each of the above periods, and dates thereof are given in tables for each month and for the year (one page to a station). For North Carolina the greatest amount on record in 1 hr was 6", in 24 hr, 15" (Hatteras); in Oregon the 1 hr extreme was 2.17" and in 24 hrs 8.71". In North Carolina June-Sept. are usually the extreme months, in Oregon June for 1, 2 and 3 hr periods and Oct.-Dec. for longer periods. Additional tables are given for first order stations, covering entire period. In Pt. 13 data for Kentucky (55 stations) and in Pt. 14 data for Louisiana (40 stations) are presented. No. 1-10 issued previously. *Subject Headings*: 1. Maximum precipitation data 2. North Carolina 3. Oregon 4. Kentucky 5. Louisiana.—M.R.

7.1-25

551.501.8 551.594.7:621.396.826

†Van Bladel, J. (*Univ. of Wash.*), **Les applications du radar a l'astronomie et a la météorologie**. [Applications of radar to astronomy and meteorology.] Pref. by M. P. Lejay. Paris, Gauthier-Villars, 1955. 147 p. 55 figs., 6 tables, 196 refs.—This monograph presents complete coverage of the manifold uses of radar in observing astronomical and meteorological objectives such as the sun, moon, planets, zodiacal light, meteorites, auroras, lightning, precipitation, snow, turbulence, thunderstorms, tornadoes and clouds. The six major sections cover: 1. General theory, design and operation of the equipment and the electromagnetic waves; 2. Diffusion by opaque spheres and echoes from heavenly bodies; 3. Diffusion from ionized trails from meteors, meteor showers, effect of upper winds, recombination, ionization variations, sporadic ionization; 4. Detection of auroras, auroral ionization and lightning;

5. Detection of precipitation, physical basis, quantitative and qualitative statics of precipitation and turbulence, upper bands; 6. Rawinsondes for obtaining upper air winds with primary and secondary radar. A very complete bibliography, including material published through 1951 is appended. Many illustrations from recent publications are included. *Subject Headings*: 1. Radar meteorology.—*M.R.*

GENERAL GEOPHYSICS AND METEOROLOGY EXPEDITIONS

See also: Observations of Byrd Exp. (Sandner), 7.1-340.

7.1-26

551.465(261)

*Ekman, V. Walfrid, *Studies on ocean currents. Results of a cruise on board the "Armauer Hansen" in 1950 under the leadership of Björn Helland-Hansen*, Pt. 1, Text. Pt. 2, Tables and plates. *Geofysiske Publikasjoner*, Oslo, 19(1), 1953. 2 v. (106 and 122 p.) numerous tables, plates, bibliog. pt. 1, p. 105-106. *DWB*—A report on the results of current gaging carried out by the author and BJÖRN HELLAND-HANSEN in 1950 in the North Atlantic in order to obtain information on the periodic or irregular variations of the average current motion. It includes a description of the ship and its deck arrangements; the types of current meters and their management; the methods of analysis of the current meter data for determining the mean and effective velocities, mean directions and spread; interpretation of levelling velocity components, use of harmonic analysis, and variable mean values; the results of measurements at various stations including the mean current, the diurnal and semidiurnal oscillations at a depth of 5 m and at various levels, oscillations with various long periods and movements below 1000 m. Drift currents, the ship's bearing, spread, turbulence; treatment of false and dubious records, explanation of false records and degree of accuracy of the repeating current meter are discussed. Explanation of the tables which are published separately are presented. *Subject Headings*: 1. Ocean current variations 2. Ocean current data 3. Current meters 4. "Armauer Hansen" cruise 5. North Atlantic. I. Helland-Hansen, Björn.—*I.L.D.*

7.1-27

551.511:551.524:551.525:551.585.55

Monin, A. S., *O mekhanizme nagrevaniia vozdukh v otkrytoi stepi*. [The mechanism of warming of the air in the open steppe.] [In: *Akademiia Nauk SSSR, Institut Geografii [and] Institut Lesa, Mikroklimaticheskie i klimaticheskie issledovaniia v Prikaspiisko-Nizmennosti*. Moscow, 1953. p. 100-123. 15 figs., 5 tables, 13 eqs., refs.] *DLC*—A study of the mechanism of warming up of the air was carried out in the summer of 1951 by a group of workers of the Geophysical Institute in the area of station Dzhanibek. In this paper the author describes the equipment, the organization of measurements and the methods of determining the turbulent flow of heat on the basis of direct and indirect (gradient) measurements. It has been shown that direct and diffused radiation has a mean intensity of 1.2-1.4 cal./cm² min at noon. The turbulent stream of heat comprises about half of the heat accumulated in the soil as a result of radiation processes. The daily balance of turbulent heat exchange is about 150 cal./cm² 24 hrs. Such is the approximate value of "heat surplus" which leads to the overheating of the air masses over open steppe. Gradient measurements can be successfully made at a 4 m height. *Subject Headings*: 1. Soil-air heat exchange 2. Turbulent heat exchange 3. Steppes.—*A.M.P.*

7.1-28

551.507.321.2

IAkobi, N. O., *Svecha krasnogo ognia dlia nochnykh sharopilotnykh nabliudeniĭ v poliar-nykh oblastiakh*. [Use of a red light for observations of pilot balloons at night in Polar Regions.] *Meteorologicheskii Vestnik*, Leningrad, 39(9/12):268-271, Sept./Dec. 1929. table fig. *DLC*—In view of the importance of continuous observation of changes of meteorological elements at Polar stations with pilot balloons and the impossibility of carrying them out during the long periods of winter darkness, the use of red Bengal light which is a light-weight, reliable cheap and safe source of light, visible with the naked eye to a distance of 10 km is proposed. The method of arranging and attaching the Bengal light (consisting of 5 connected individual

ubes) to the balloon is described. The author presents a table of results of base line observations of the flight of one trial balloon carried out at Luga in Aug. 1927 showing the height and vertical speed per minute and the total height (3700 m) attained during the 21 minutes of the pilot balloon's illumination and discusses some improvements which should be made in order to achieve better results. *Subject Headings:* 1. Pilot balloons 2. Balloon accessories 3. Balloon illumination 4. Pilot balloon observations 5. Luga, U.S.S.R.—*A.M.P.*

7.1-29

550.3(98) 551.311.173(98)

Stanwell-Fletcher, John F. (*Lt. Col. U.S.A.F. Reserve*), **New focus on the Arctic.** *New York Times Magazine*, Sec. 6, Oct. 3, 1954. p. 14-15, 72-73. **DLC**—A polar projection chart shows the "climatological limit" of the Arctic in relation to continents, oceans and Arctic Ice Pack limits. Pictures illustrate life in the Arctic, both North American and Soviet, and on the ice islands, and mention is made of American and Soviet research on the Arctic, and the importance of geophysical research in Arctic life as well as defense activities. *Subject Headings:* 1. Arctic geophysical research 2. Arctic ice islands.—*M.R.*

7.1-30

551.590.24 550.3

Cialdea, R. and Dominici, P., **L'osservatorio geofisico installato a Khartoum in occasione dell'eclisse di sole del 25-2-1952.** [Geophysical observatory installed at Khartoum on the occasion of the solar eclipse of Feb. 25, 1952.] *Annali di Geofisica*, 5(4):581-589, Oct. 1952. 6 figs. English summary p. 589. **MH-BH**—Installation and operation of the equipment used by the Italian expedition is reported. The equipment, weighing 635 kg, consisted of instruments for measuring solar and sky radiation, clouds, atmospheric electricity and geomagnetic activity. All values were recorded continuously during the eclipse, except the vertical component and the declination of the geomagnetic field. *Subject Headings:* 1. Solar eclipses 2. Geophysical observatories 3. Khartoum.—*G.T.*

7.1-31

523.78:778

R[aimond], J. J., Jr., **De totale zonsverduistering van 30 Juni 1954.** [The total solar eclipse of June 30, 1954.] *Hemel en Dampkring*, 52(7/9):133, July/Sept. 1954. fig., photos (colored). **DLC**—A photograph of the total eclipse of June 30, 1954 taken on Gotland Island in the Baltic Sea is reproduced. A brief description is given of the Dutch scientific eclipse expedition to Norway and of the Dutch amateur expedition to Sweden. Color photographs showing the corona and the sky cover are included. *Subject Headings:* 1. Solar eclipses 2. Eclipse photography 3. Norway 4. Sweden.—*I.L.D.*

7.1-32

551.506:551.521:523.78

*Jerlov, N. (*Fishery Board of Sweden, Gotheburg*); Olsson, H. (*Bagdad Airport*) and Schüepp, W. (*Service Mët., Leopoldville*), **Measurements of solar radiation at Lövanger in Sweden during the total eclipse 1945.** *Tellus*, Stockholm, 6(1):44-45, Feb. 1954. 2 figs., 3 refs. **DWB**—A Moll thermopile with 80 sets of junctions and infrared screening was used during eclipse on July 9, 1945, to measure solar radiation in different parts of the spectrum, at Lövanger, Sweden (64°22'N, 21°19'E). Skies were clear and wind calm. Readings were made every 5 min from 1350h to 1604h (eclipse total from 1501h-1502h). Variations in extinction coefficient β are shown graphically, indicating a slow decrease possibly due to dissolution of inversion at 1 km. This dissolution was retarded during eclipse. Water vapor and ozone variations are also calculated from absorption in certain spectral ranges. Water vapor did not vary much but O_3 showed a decrease of 33%. *Subject Headings:* 1. Radiation measurements during eclipse 2. Extinction coefficient variations 3. Solar eclipses 4. Lövanger, Sweden.—*M.R.*

7.1-33

523.78

Raimond, J. J., Jr. and Van den Bergh, G., **De reis naar Zuid-Noorwegen.** [The trip to South Norway.] *Hemel en Dampkring*, 52(7/9):154-160, July/Sept. 1954. 4 photos. **DLC**—The author describes the voyage of the Dutch eclipse expedition (June 30, 1954) to Larvik, Norway and the eclipse itself, and presents photographs of the group. *Subject Headings:* 1. Solar eclipses 2. Norway.—*I.L.D.*

7.1-34

523.7

Hurst, G. W., **Aerial observation of total solar eclipse June 30, 1954.** *Meteorological Magazine*, London, 83(989):335-337, Nov. 1954. 12 figs. DWB—Good description of flight above cloud in the Faeroes area along central belt of totality. Photos (hand camera with infrared plate and cine camera with yellow filter) show corona very well and also sharp beginning and end of totality. *Subject Heading: 1. Solar eclipses.—C.E.P.B.*

7.1-35

523.7

Houtgast, J., **De expeditie van de Nederlandse Eclips-Commissie naar Gotland.** [The expedition of the Dutch Eclipse Commission to Gotland.] *Hemel en Dampkring*, 52(7/9):134-153, July/Sept. 1954. 18 figs. DLC—The Dutch Eclipse Expedition was headed by PROF. MINNAERT, DR. HOUTGAST and PROF. VAN HEEL. In this article the author describes the preparations for the observations and the results of observations made of the corona, chromosphere and on the "flying shadows." Photographs show the members of the expedition, the apparatus and the field camp, the spectra of the corona, the shadow as seen from an airplane spectra of the chromosphere, etc. *Subject Headings: 1. Dutch Eclipse Expedition, 1954. 2. Solar eclipse, June 1954. 3. Gotland, Sweden.—I.L.D.*

7.1-36

551.584.41 551.506.5(477)

*Dokuchaev, Vasilii Vasil'evich (ed.), **Trudy Ekspeditsii, snariazhennoi Lesnym Departamentom pod rukovodstvom professora Dokuchaeva.** Nauchnyi Otdel, Tom III, **Meteorologicheskiiia Nabliudeniiia.** [Transactions of the Expedition sponsored by the Forestry Dept. (of the Imperial Russian Ministry of Agriculture), under the leadership of Prof. Dokuchaev. Scientific Section, Vol. 3, Meteorological observations.] St. Petersburg, Izdaniia Lesnogo Departamenta, 1894-1898. 3 pieces. Contents: Vol. 3, No. 1 (pub. 1894), Pt. 1, p. 1-275, Adamov, N., **Meteorologicheskiiia nabliudeniiia, 1892-1894 god.** [Meteorological observations, 1893-1894.] 70+tables, 20+figs. Pt. 2, p. 277-314, Vysotskii, G., **Sutochnyia minimumy temperatury.** [Daily minimum temperatures.] Vol. 3, No. 1, Supplement (pub. 1898), Adamov, N., **Tablitsy Meteorologicheskikh nabliudenii 1893 god.** [Tables of meteorological observations for 1893.] 247 p. entirely tables. Vol. 3, No. 2, (pub. 1898) Adamov, N., **Meteorologicheskiiia nabliudeniiia 1894-1895 god.** [Meteorological observations 1894-1895.] 264 p. 65 tables, 47 figs. DA—This comprehensive expedition, under the leadership of the great founder of soil science, embraced continuous studies of landscape geology, soils, vegetation, agriculture and climate of the Steppe-Taiga region of the Ukraine. Eight meteorological stations were set up in the Don and Donetz basins. The results of the observations at the stations, and at "flying" or mobile stations operating out of several of the semipermanent stations in 1892-1893 are analyzed in great detail in the first number of Vol. 3 by N. ADAMOV. In addition there is an article on local daily minimum temperatures in the Velikoanadol'sk forest nursery where micrometeorological effects were analyzed under different soil, slope and exposure conditions. The supplement to Vol. 1, No. 1, contains the actual thrice-daily observations of temperature, humidity, (absolute and relative), wind, cloudiness, precipitation, evaporation, sunshine, hydro-lithometeors at stations 1, 2, 3, 4, 5, 6 and 8 and soil temperatures at surface, 0.1, 0.25, 0.5, 1.0 and 2.0 m once or 3 times a day in 1893 at stations 1, 2, 3, 4, 5, 6 and 8. Vol. 3, No. 2 contains data and an extensive analysis for 1894 and 1895 of the results obtained at the 8 stations, 10 precipitation stations and the mobile stations. Cross sections accompany the detailed analyses to show distances from trees, relation to topography and slope, etc. of the elements of temperature, humidity, precipitation and evaporation and sunshine and wind, as well as soil temperature and snow cover. The sections on snow cover in Pts. 1 and 2 are rich with detailed data on snow depth in cultivated and fallow fields, around trees and bushes, in valleys and slopes, etc. Intensity of solar radiation was the only element that could conceivably have been treated that was not treated. Many photographs and drawings show sites and surroundings of forest and steppe stations. Two stations (1 and 2) were in the Starobel'sk section (in and near Belovodsk), where 4 subsidiary points were located. Three stations were in the Khrenovsk section (3, 4 and 8) and 3 subsidiary points were studied near station 3, 2 near station 8, and 3 near station 4. Stations 5 and 6 were in the Velikoanadol'sk section. Soil temperature and moisture and ground water in evergreen, deciduous and grassy exposures were also finally analyzed in connection

th soil and meteorological conditions. Snow cover is analyzed according to exposure, and obstacles and illustrated with many sketches. Thawing in spring around trees or shrubs and in various aspects is also analyzed. A chapter on the extremities of the steppe climate appears on p. 235-246 of V. 3, Pt. 1. Detailed soil moisture data on p. 247-265 of Pt. 1 and complete instructions for establishing 2nd order stations and observing soil moisture and snow cover, etc. on p. 268-275. Elaborate snow cover profiles appear (some in color) in tables I-IV following p. 275 of Pt. 1. *Subject Headings:* 1. Forest micrometeorology 2. Meteorological data 3. Expeditions 4. Ukraine, U.S.S.R. I. Ekspeditsiia snariazhennaia na Krym Departamenton pod rukovodstvom Professora Dokuchaeva II. Dokuchayev Expedition, 1892-1895.—M.R.

IGY, I.U.G.G. AND WMO.

7.1-37 55:06 551.5:06 550.3:061.3

The International Geophysical Year 1957-58. *Current Science*, Calcutta, 23(9):279-281, pt. 1954. DLC. Also: Haslett, A. W., Research report [on] International Geophysical Year. *Science News*, 35:112-114, 1955. DWB—1) A brief account of the preparation and organization of the International Geophysical Year 1957-1958, of the proposed activities and of the special contributions of India. 2) A summary of the plans and objects of the International Geophysical Year 1957-58. *Subject Headings:* 1. International Geophysical Year, 1957-1958 2. International Geophysical Year program.—I.L.D., C.E.P.B.

7.1-38 5:06(09)

International Council of Scientific Unions, *Description sommaire de l'I.C.S.U.* [Summary description of the International Council of Scientific Unions.] *I.U.G.G. Bulletin Information*, 3(6):371-379, July 1954. DWB—Describes history of organization of I.C.S.U. in 1919 as successor to the International Association of Academies (founded 1900) and present status, the names of the 11 Unions, 40 national members and national committees, administrative aspects, objectives and special committees. These are: (1) CSAGI, 1957-1958 and (2) Bureau des Résumés Analytiques de l'ICSU. The former had its first meeting at Brussels in the fall of 1951. At present 26 national committees have participated. The Bureau des Résumés Analytiques is concerned with exchange of physics abstracts (English, French and German at present). Officers of the 11 unions and 7 mixed commissions, finances, etc. are listed. *Subject Headings:* 1. International Council of Scientific Unions 2. CSAGI organization.—M.R.

7.1-39 551.5:06

International Union of Geodesy and Geophysics. Association of Meteorology, Brussels, 1951, *Procès-Verbaux des séances. Mémoires et discussions*. [Proceedings of the meetings, memoirs and discussions.] Its *Publication AIM*, No. 9/c, Dec. 1953. 413 p. illus. DWB—The proceedings give 133 papers on meteorological subjects. Twenty six papers deal with the general circulation of the atmosphere and oceans, 16 with cloud physics, 7 with various optical subjects, 11 with climatological problems, 8 papers discuss the upper atmosphere, 12 discuss radiation, 12 discuss micrometeorology and 24 discuss atmospheric ozone. Seven papers on microseisms and 12 on evaporation are given by title only and are published in the proceedings of the seismological and of the hydrological associations at the same meeting. For many papers only summaries or abstracts are given. The dominant language of the publication is English (74%), 19% of the papers are in French and 6% in German and some in Italian or Spanish. *Subject Headings:* 1. Meteorological conferences 2. International Union of Geodesy and Geophysics 3. Symposia 4. Brussels, Belgium.—A.A.

7.1-40 55:06

International Union of Geodesy and Geophysics, Rome, Sept. 14-25, 1954, *X^e Assemblée Générale . . . Programme définitif* [Tenth General Assembly. Definitive program.] Rome, Consiglio Nazionale delle Ricerche, 1954. 116 p. diags. (fold.). DWB—Lists Executive Committee of IUGG, Italian Committee for Organization of Rome meeting, general information and practical instructions, transportation, program of assembly, general program,

and detailed program of the various associations, the CSAGI meeting (Sept. 30–Oct. 4) and program for ladies. Finally, 2 colored fold. maps of Rome showing free bus routes for members and delegates. *Subject Headings:* 1. I.U.G.G. programs 2. CSAGI programs 3. Rome, Italy.—*M.R.*

7.1–41

55:06 551.5:1

International Union of Geodesy and Geophysics. Association of Meteorology, Rome, Sept. 1954, **Programme. Résumé des communications.** [Program. Resume of papers.] Its *Publication AIM*, No. 10/a, June 1954. 49 p. **DWB**—Daily program of papers to be read at the sessions of the Association of Meteorology, Sept. 15–23, 1954 and abstracts of 59 papers. *Subject Headings:* 1. I.U.G.G. International Association of Meteorology 2. I.U.G.G. programs.—*M.R.*

7.1–42

55:0

Kalashnikov, A. G., **Desiatiaia assambleia mezhdunarodnogo geodezicheskogo i geofizicheskogo soiuza v Rime 14–25 Sentiabria 1954 g.** [The 10th Assembly of the International Union of Geodesy and Geophysics, Rome Sept. 14–25, 1954]. *Akademiia Nauk SSSR Izvestiia, Seria Geofizicheskaiia*, No. 6:578–581, 1954. **DLC**—The organization of the Assembly of Geodesy and Geophysics is described. The delegates from the various countries and the chairmen of various sections are listed and some of the papers presented in the various sections are summarized briefly. *Subject Headings:* 1. Internal Union of Geodesy and Geophysics 2. I.U.G.G. meetings.—*I.L.D.*

7.1–43

551.5:1

World Meteorological Organization. Executive Committee, Geneva, Aug. 25–Sept. 1, 1954. **Abridged report of Fifth Session, with resolutions.** *World Meteorological Organization WMO No. 34.RC.6, 1954.* 107 p. **DWB**—A concise but extensive report on the session. Lists of those attending, agenda, documents related to agenda items, summary of work session, list of 34 resolutions adopted by the Fifth Session, appendices giving draft agenda, Second Congress of WMO, agreement for continuing services of DR. SWOBODA as Acting Secretary General of WMO after his retirement (at 60) until next Congress, proposals for Secretariat during 2nd financial period, budget estimates for 2nd period (1956–9), list of documents and list of resolutions adopted since 1st Session. *Subject Headings:* 1. WMO Executive Committee meeting 2. WMO. Secretariat.—*M.R.*

OBSERVATORIES

7.1–44

551.501.9 523.75(0)

Cornell University, Ithaca, N. Y., School of Electrical Engineering, **Establishment and instrumentation of a Radio Frequency Solar Observatory in the Alamogordo, New Mexico area.** Contract W19-122 ac-41, Quarterly Reports, No. 6–12, Sept. 30, 1949–June 30, 1955, and Final Report, **Handbook of Maintenance and Operating Instructions.** Dec. 15, 1955. 8 pieces. tables, graphs. **DWB**—Various phases of development work in building and equipping this solar observatory are reported in the separate progress reports (1–8). Report No. 9 gives the results of a conference on solar noise held at Cornell Univ., July 12–13, 1955, and some theoretical studies on theory of radio-frequency thermal radiation from the sun for the case of zero magnetic field, allowing for variation in index of refraction. Report No. 10 gives quantitative results of correlation between solar noise and terrestrial phenomena (magnetic storms, radio fade outs, etc.). Report No. 11 indicates that continuous daily observations made on 200 and on 50 Mc since Dec. 22, 1950 and coordinated with data obtained at Ithaca, showing identical time and characteristics, indicate solar origins rather than ionospheric modification as source. Subsequent observations (in Report No. 12) bear out the conclusion that eruptive prominences produce almost simultaneous increase in radio emissions from the sun at two distant stations. Comparative records are shown. The Final Report comprises a handbook for maintenance, and operating instructions for the solar radio observatory. Each piece of equipment is described and illustrated, and instructions given for installation, maintenance and operations, including theory. *Subject Headings:* 1. Solar flares

Solar radio emission 3. **Handbooks** 4. **Solar observatories** 5. **Sacramento Peak, N. Mex. Ithaca, N. Y.—M.R.**

7.1-45

523.7:551.501.9

Harvard Univ. Harvard College Observatory. Solar Dept., **The establishment of a solar observatory at Sacramento Peak, New Mexico.** Contract W19-122ac-17, Final Report, May 29, 1953. 21 p. Partial list of reports, with abstracts, p. 7-19. **DWB**—The basic purpose of the contract was to explore the possibility of establishing an upper air research station, with special facilities for observations of the sun and solar activity, and to set up the station and develop a related research program. This project involved the design and development of some highly specialized instruments for securing the observational data needed for a research program. Today the modern station on Sacramento Peak, plus the numerous scientific reports prepared by the research staff stand as evidence of the work accomplished under the contract. The rotating turret and enclosure for the 26-ft Equatorial Table coronagraph were designed and constructed under this Contract, as was the 10-ft equatorial spar, with a photoelectric guider, plus a prominence camera and a flare patrol. In operation at the peak is the 8-ft equatorial spar and associated $4\frac{1}{4}$ -in. coronagraph and spectrograph. Forty-two Scientific or Special Reports were issued under Contract W19-122ac-17. These studies are listed and abstracted in the body of the Final Report. Twenty Progress Reports have been issued during the life of the Contract, April 1948 to May 1953, tracing the performance of the Contract periodically. *Subject Headings:* 1. **Solar observatories** 2. **Sacramento Peak, New Mexico.** I. Contract W19-122ac-17.—*From author's abstract.*

7.1-46

551.501.9(09)

Repetti, William Charles (*Georgetown Univ.*), **The Manila Observatory, Manila, Philippines.** Washington, D. C., 1948. 43 p. Litho-printed from author's typescript. **DLC**—An account of the history of the Manila Astronomical, Seismological and Meteorological Observatory which was owned and operated from 1865 to 1943 by the Jesuit Order of which the author is a member. The emphasis is on administrative problems of the observatory and on the personal histories of its directors and staff. Instruments used and observations made are mentioned. Meteorological activities included ground observations, pilot balloon ascents, observations of atmospheric electricity, etc. *Subject Headings:* 1. **History of observatories** 2. **Manila Observatory.**—*G.T.*

7.1-47

551.501.9(427) 551.582(427)

Reynolds, G., **Weather records at the Liverpool Observatory.** *Weather*, London, 9(8). 1933-241, Aug. 1954. 4 figs., photo, 3 tables, 4 refs. **DWB**—Description, and photo, of Liverpool Observatory since 1845 (Bidston since 1866) with details of instruments and exposure, tidal research and summary of climate. *Subject Headings:* 1. **Observatories** 2. **Liverpool Observatory** 3. **Climate of Liverpool** 4. **Liverpool, England.**—*C.E.P.B.*

7.1-48

551.501.9

The Duneland Observatory. *Weatherwise*, 5(6):136-137, Dec. 1952. 2 photos. **MH-BH**—Owned and operated by R. A. WARD, an architect, the co-operative station has a unique position at the southern tip of Lake Michigan (with instruments exposed less than 300 ft from the water) for the investigation of lake-to-shore influences. Daily observations regularly made at 7 p.m. cover pressure (with tendency), temperature (dry bulb, wet bulb, maximum, minimum), wind, precipitation, state of weather and cloud motion. Instruments used are meroid barometer, barograph, microbarograph, sling psychrometer, maximum and minimum thermometers, 8-in. rain gage, 3-cup indicating anemometer and indicating wind vane. *Subject Headings:* 1. **Duneland Observatory** 2. **Amateur weather stations.**—*G.T.*

7.1-49

551.501.9 550.38

†Yriberry, Arturo J., **Sección geoelectrica.** [Goelectric Sec., San Miguel Observatory.] *San Miguel, Argentina. Observatorio de Física Cósmica, Memoria*, No. 1, 1952. 54 p. 63 figs., 30 refs., eqs. **DWB**—In addition to a general description of the San Miguel Observatory, its history and equipment, the various instruments used and their calibration are described

and illustrated in detail. The section on atmospheric electricity (Ch. III) gives information on atmospheric electricity instruments, including those for measuring potential gradient in fair weather, all weather, lightning storms and disturbed weather, an Aitken nuclei counter and ion counters (light and heavy). Calibration equipment is described in Ch. V, and sample recorder records and a bibliography appended. The Observatory of Cosmic Physics is located 35 km from the center of Buenos Aires. *Subject Headings: 1. San Miguel Observatory, Argentina 2. Atmospheric electricity instruments.—M.R.*

7.1-50

551.501.9(01)

Bent, Arthur, **Mount Washington, 1953.** *Mount Washington Observatory, Gorham, N. H., News Bulletin*, No. 23:1-3, Dec. 1953. separate map. DWB—The complicated history of the ownership and maintenance of facilities on Mt. Washington beginning in 1834 and not yet definitely settled, is reviewed. The private and public interests which were brought together to make best use of the unusual site, are trying to work out the legal and other aspects to the best interests of the public. Besides the observatory, which is located in a building constructed in 1937 (with a 20 year lease from Nov. 3, 1937 to Mt. Washington Observatory) under Dr. Charles F. Brooks of Harvard) and taken over by Dartmouth College, there are Air Force, Navy and Forest Service installations, a radio and a TV station (under construction) at Blue Hill. A million dollar climatic laboratory is also being constructed there. *Subject Headings: 1. Mount Washington Observatory 2. History of observatories.—M.R.*

7.1-51

551.501.9(058)

Blue Hill Meteorological Observatory, [Report of the] Blue Hill Meteorological Observatory, by Charles F. Brooks, Director. Preprinted from the Report of the President of Harvard College and Reports of Department, 1951/52 and 1952/53. *Blue Hill Observatory, Reprints*, No. 1, 1953 and No. 1, 1954. Appendix: Publications. 2 pieces, 16 p. each. DWB—These reports give the names of a number of important meteorological research or teaching organizations in the Boston area, which makes it second to Wash., D. C., in importance for meteorology. Work of the staff, partly under U. S. Weather Bureau or G.R.D. contract is described and contributors are listed. International activities, studies in cloud physics at Blue Hill and Mt. Washington, solar radiation studies and library activities are also reviewed. The 1954 report summarizes research and other activities of the past 5 years and gives recommendations for the future. (For Report 1950/51, see 4.5-32, May 1953, MAB.) *Subject Headings: 1. Annual service reports 2. Blue Hill Observatory 3. Meteorological research. I. Brooks, Charles F.—M.R.*

CONFERENCES

See also: Soil mechanics papers (Natl. Res. Council, Canada), 7.1-4; Proceedings. U.S.A.E.C., 7.1-5.

7.1-52

55:06(43)

Berg, Hellmut, Bericht über die Tagung der Deutschen Geophysikalischen Gesellschaft vom 7. bis 11. October 1951 in Stuttgart. [Report on the meeting of the German Geophysical Society, Oct. 7-11, 1951, in Stuttgart.] *Geofisica Pura e Applicata*, 20:206-208, July/Dec 1951. MH-BH—Papers included several on seismology, isostasy and instrumentation thereof; report of the I.U.G.G. meeting in Brussels (1951), papers on terrestrial magnetism and hydrography, applied geophysics and other related subjects. *Subject Headings: 1. German Geophysical Society 2. Conferences.—M.R.*

7.1-53

551.5:06

Bilancini, R., Il Congresso della Deutsche Meteorologische Gesellschaft. [Meeting of the German Meteorological Society.] *Rivista di Meteorologia Aeronautica*, 14(1):80-81, Jan./March 1954. DWB—A brief note on the more important scientific topics discussed at the meeting held from Sept. 27-Oct. 4, 1953 and on the various special events. Synoptic meteorology, numerical forecasting, general circulation, radiology, climatology and microclimatology were the principal subjects of discussion. *Subject Headings: 1. Conference 2. German Meteorological Society 3. Meteorology.—I.L.D.*

7.1-54

551.481.1:06

Fritsch, F. E. (*Cambridge, Eng.*), *The twelfth International Congress of Limnology*, 53. *Science*, 119(3084):173-175, Feb. 5, 1954. DWB—Held Aug. 20-30, 1953, at Cambridge, Eng. with 300 attending. Over 100 papers read. Of interest to meteorologists were papers on temperature relations and circulation in lakes, effect of inflowing water on thermal stratification, absorption of solar energy by surface layers, and nocturnal radiation (B. DUST); Energy transfer between air and water (H. CHARNOCK); Evaporation regime of lakes at mid-latitudes (H. NEUMANN); Temperature relations of lakes in Venezuela, Guatemala and Salvador (F. GESSNER), etc. *Subject Headings*: 1. International Congress of Limnology Conferences.—*M.R.*

7.1-55

551.5:06 55:06

Rendiconti della Seconda Assemblea Generale della Società Italiana di Geofisica e Meteorologia, Genova 23-25 Aprile, 1954. [Report on Second General Assembly of Italian Society of Geophysics and Meteorology, Genoa, April 23-25, 1954.] *Geofisica e Meteorologia*, Genoa, 2(3/4):65-74, May-Aug. 1954. fig., table. MH-BH—Contents: 26 short resumes—abstracts of articles which have either been published or will be published in *Geofisica Pura e Applicata*. *Subject Headings*: 1. Italian Society of Geophysics and Meteorology 2. Geophysical conferences 3. Meteorological conferences.—*I.L.D.*

7.1-56

551.5:632.187:06

U. S. Weather Bureau, [Papers presented at the Fire Weather meeting at Portland, Oregon, Feb. [Mar.?, 1955]. 15 papers, each separately paged. Some reprints, some type-script, some mimeog. DWB—A group of papers dealing with fire weather forecasting problems, local wind and humidity surveys, objective studies of parameters most likely to affect the burning index or aid in forecasting these factors (wind and humidity), fire vortices on the slopes near ridges, and routine annual fire-weather reports for the states of Calif., Oregon, Washington, Idaho and Western Wyoming. All papers are abstracted separately and titles run in *MAB*, Pt. III, p. 132, Jan. 1956. *Subject Headings*: 1. Fire weather conference reports 2. Pacific Northwest 3. Portland, Oregon 4. California. I. Fire Weather Conference, Portland, Oregon, March 1955.—*M.R.*

SERVICES

See also: German Geoph. Soc. (Berg), 7.1-52.

7.1-57

551.5:06:016

†Canada. Meteorological Div., Scientific activities of the Meteorological Division. Its *IR-2336*, TEC-161, July 27, 1953. 18 p. many refs. to published articles by staff members. WB—Climatological agrometeorology, biological meteorology, fire weather (forest), military meteorology, Arctic meteorology, atmospheric pollution, cloud physics, fog, artificial precipitation, icing, instruments, upper atmosphere, dynamics of the atmosphere, precipitation, pressure, radiation, temperature, local forecasts, radio propagation and wind studies made by Canadian Meteorological Division employees and published papers are described and listed. *Subject Headings*: 1. Meteorological research 2. Bibliography of Canadian meteorological literature 3. Canada. Meteorological Div. 4. Canada.—*M.R.*

7.1-58

551.5:06(058)(914)

Philippines. Weather Bureau, Annual report, 1952/53 and 1953/54. Pub. Nov. 1953 and Aug. 1954. 2 pieces [65 and 77 p.] illus., tables. DWB—Reports administrative and scientific accomplishments in the field of forecasting, marine work, research and service for meteorology, seismology, climatology, geophysics, and astronomy. International cooperation (8th Pacific Science Conference and Region V of WMO) and plans for observations of total eclipse of sun on June 20, 1955 figure heavily in 1953-54 report. (For earlier reports, see B-13, Feb. 1954, *MAB*.) *Subject Headings*: 1. Annual service reports 2. Philippines.—*M.R.*

7.1-59

551.5:06(7)

Canada. Meteorological Division, **In the public service**, Jan. 1954. Summary of public information activities, excerpts from press clippings, letters, etc. Its CIR-2446, PR-60 March 5, 1954. 6 p. loose-leaf. includes photos. Also PR-55 Oct. 19, 1953 and PR-55 Dec. 16, 1953. DWB—Miscellaneous press items on the Canadian weather service including description of Forecast and Analysis Center at Malton Airport where 14 meteorologists are assigned, the Hamilton, Ontario office and its service to the community and industry; a quotation from **Ottawa Evening Citizen**, Jan. 27, 1954, regarding warmer winters in Canada (5 out of 6 stations show appreciably warmer winters now than 45 years ago), and a list of recent broadcasts by staff at numerous places in Canada are included. Facsimile map transmission begun in Aug. 1953 on a national basis was the subject of several articles. *Subject Headings*: 1. Canadian weather service 2. Facsimile map transmission 3. Malton, Ontario Analysis Center.—M.R.

SOCIETIES

See also: Summary of ICSU, 7.1-38; German Geoph. Soc. (Berg), 7.1-52; German Meteorological Soc. (Bilancini), 7.1-53; Italian Soc. of Geophysics & Meteorology, 7.1-55.

7.1-60

550.3:06(73) (058)

National Research Council, Wash., D. C. Division of Earth Sciences, **Annual report 1953/1954**. 122 p. Mimeo. DWB—A report on the activities, including glaciological research of the American Geographical Society, is to be found on p. 41-2. A report of the activities and present status of the American Geophysical Union and its publications (especially the **Transactions**) is given on p. 55-56 by HARRY H. HESS, Representative. *Subject Headings*: 1. Annual society reports 2. American Geophysical Union. I. Hess, Harry H.—M.R.

EDUCATION, HISTORY AND BIOGRAPHY

EDUCATION

7.1-61

551.5 (02)

Thomas, Augusta Eleanor, **Weather**. Columbus, Ohio, American Education Press, 1939. 32 p. *Unit Study Book*, No. 55. Photos, diagrs. DLC—An elementary course in weather for high school or junior high school students. The information about the U. S. Weather Bureau and its far-flung activities (hurricane service, mountain and Arctic stations, upper air soundings by airplane, pilot balloon and radiosonde, airways reporting and forecasting services etc.); the history of the U. S. Weather Bureau and causes of weather popular maxims and amateur observing stations is accurate (though sketchy) up to 1938 or 1939. Illustrations are good. *Subject Headings*: 1. Juvenile textbooks 2. Amateur meteorology.—M.R.

7.1-62

551.5:374.8

Eyre, S. R., **Malham Tarn vacation course in meteorology**. *Weather*, 9(10):314-316, Oct. 1954. MH-BH—Summary of training course Aug. 25-Sept. 1, 1954. *Subject Headings*: 1. Teaching of meteorology.—C.E.P.B.

7.1-63

551.501.9:371.1

Richardson, W. E., **School weather station**. *Weather*, 9(7):195-197, July 1954. DWB—Account of station at King's School, Alston, and the methods of teaching meteorology as a branch of geography. *Subject Headings*: 1. Amateur weather stations 2. Teaching of meteorology.—C.E.P.B.

7.1-64

551.5:598.2

Bonacina, L. C. W., **British birds in the weather scene**. *Weather*, 9(12):372-373, Dec. 1954. DWB—Note on effect of birds in accentuating scenic weather. *Subject Headings*: 1. Birds.—C.E.P.B.

HISTORY

See also: Manila Obs. (Repetti), 7.1-46; Liverpool Obs. (Reynolds), 7.1-47.

- 7.1-65 551.5(09)
 Okada, Takematsu, *Kisho-gaku no Kaitakusha*. [Pioneers in meteorology.] Tokyo, Sanami Book Co., Ltd., 1949. 308 p. figs., numerous refs. throughout. In Japanese.
 LC—The history of weather science. The 14 chapters are entitled: 1) synoptic weather charts and weather reports, 2) fronts, 3) adiabatic change, 4) cloud, 5) troposphere-stratosphere, 6) raindrop, 7) dew, 8) general circulation of the atmosphere, 9) cyclone, 10) anticyclone, 11) squall, 12) tornado and waterspout, 13) thunderstorm, 14) hail. *Subject Heading: 1. History of meteorology.*—H. Arakawa.

BIOGRAPHY

- 7.1-66 551.5:92
 Perl, G., F. W. Paul Götz (1890-1954). [Obituary.] *Geofisica Pura e Applicata*, Milan, 29:236, Sept./Dec., 1954. In German. MH-BH—A brief outline of the scientific contribution of F. W. PAUL GÖTZ who died on Aug. 29, 1954 at 64. The principal fields of the Swiss meteorologist and climatologist were radiation research, bioclimatology, auroral research, and atmospheric ozone. Three among his 172 publications are mentioned as outstanding: 1. *Strahlungsklima von Arosa* [Radiation climate of Arosa], 1926; 2. *Klima und Wetter in Arosa* [Climate and weather in Arosa], 1954 and 3. *Ozone in the atmosphere* (Compendium of Meteorology, 1951). *Subject Headings: 1. Obituaries 2. Götz, F. W. P.*—T.

- 7.1-67 551.5:92
 Goldie, A. H. R., Sir Nelson Johnson, K.C.B., A.R.C.S., D.Sc. *Royal Meteorological Society, Quarterly Journal*, 80(345):489-490, July 1954. DWB. Also: Sutton, O. G., *Journal of Atmospheric and Terrestrial Physics*, 5(3):188, July 1954. DWB—*Subject Headings: 1. Biography 2. Johnson, Sir N.*—C.E.P.B.

- 7.1-68 551.5:92:061.4
 Botley, Cicely Mary, *Meteorology at the Leonardo Exhibition*. *Weather*, 7(5):144, May 1952. ref. Also: Chaplin, J. H., *Leonardo the Florentine*. *Ibid.*, 7(6):170-171, June 1952. DWB—1) The LEONARDO DA VINCI (1452-1519) exhibition in London include a hygrometer and anemometer and some studies of moving water, rain and cloud. 2) Quotes some of LEONARDO DA VINCI's notes and theories on meteorological phenomena and on flying. *Subject Headings: 1. Leonardo da Vinci 2. Exhibitions 3. Meteorology in art 4. Biography.*—E.P.B.

- 7.1-69 551.5:92
 Hesse, W., August Schmauss. [Obituary.] *Beiträge zur Geophysik*, Stuttgart, 64(4):211-232, 1955. photo. DWB—Born Munich Nov. 26, 1877, died Oct. 10, 1954. Joined the Bavarian meteorological central station 1906, Director 1910. Professor of Meteorology Munich University 1917. Author of over 400 publications on all branches of meteorology, especially physical processes in the atmosphere and singularities. *Subject Headings: 1. Obituaries 2. Schmauss, A.*—C.E.P.B.

- 7.1-70 551.5:92
 Obituary [of] Major-General the Right Hon. Sir Frederick Sykes, P.C., G.C.S.I., C.I.E., G.B.E., K.C.B., C.M.G. *Meteorological Magazine*, London, 83(990):381, Dec. 1954. DWB—Died Sept. 30, 1954. Controller-General of Civil Aviation and President or chairman of Meteorological Committee 1919-1922. SIR G. SIMPSON describes his part in the successful transfer of the Meteorological Office from an independent Committee to the Air Ministry. *Subject Headings: 1. Obituaries 2. Sykes, Sir F.*—C.E.P.B.

- 7.1-71 551.5:92
 Obituary [of] Vladimir IUL'evich Vize. *Polar Record*, 7(50):431-432, May 1955. DLC—Born Leningrad March 5, 1888, died Feb. 19, 1954. In 1912-14 on SEDOV's N. Pole at-

tempt. After 1918 specialized on sea ice movements and forecasting, and also wrote on the history of exploration and took part in several Soviet expeditions. *Subject Headings: 1. Observations 2. Vize, V. IU.—C.E.P.B.*

7.1-72

551.5:92

Novák, Václav, A. I. Vojejkov, zakladatel ruské klimatologie a zemědělské meteorologie. [A. I. Vojeikov, the founder of Russian climatology and agricultural meteorology.] *Za Socialistické zemědělství, Prague*, 2(11):1334-1340, Nov. 1952. refs. DLC—Based mainly on biography by E. ANDREEVA (A. I. Vojeikov, osnovatel' russkoj klimatologii. Leningrad, Gidromet. Izd., 1949), this article is in commemoration of ALEXANDR IVANOVICH VOJEIKOV (1842-1916), one of the outstanding Russian climatologists and geographers. Among his various activities the author stresses his activities bearing on geography, general, regional and local climatology, and agricultural meteorology (initiated by VOJEIKOV). Twelve principal works are quoted of his approximately 2000 geographical, meteorological and climatological papers. *Subject Headings: 1. Biography 2. Vojeikov, Alexandr Ivanovich.—G.T.*

BIBLIOGRAPHY AND INDEXES

7.1-73

551.579:01

†International Union of Geodesy and Geophysics. Association of Scientific Hydrology. [International Bibliography of Hydrology], 1935-. Beginning date according to particular member country. Bibliographies issued for the Association of Scientific Hydrology by various entities in each country. Variation in periodicity and regularity, as well as format. (For abstract on this title, see 6A-78, Jan. 1955, M.A.B.) DLC, MH-BH, and DWB have scattered issues for various countries. The following list shows recent accession in the U. S. Weather Bureau Library.

Argentina. Bibliografía de obras sobre Hidrología, [to May 10, 1954], annuaire pub. 1954. 61 p.

Belgium. Bibliographie Hydrologique, 1948/1952 [incl.]. [pub. 1955?]. 105 p.

Eire. Bibliography of Hydrology, 1934/1949, inclusive. pub. 1953. 15 p.

France. Bibliographie Hydrologique, 1952. pub. 1954. 23 p.

Germany. Hydrologische Bibliographie, Vol. 10, 1952. pub. 1955. 105 p.

Italy. Bibliographie Hydrologique, Annuaire 3, 1937/1953 (incl.). pub. Rome 1954. 127 p.

Poland. Bibliografia Hydrologiczna, 1945/1948. pub. Warsaw, 1954. 97 p.

Portugal. Bibliographie Geohydrologique 1924/1954 [incl.]. pub. 1955? 95 p.

South Africa. National Bibliography of South African Hydrological Papers pub. during 1940/1950 [incl.]. pub. 1953. 47 p.

Spain. Bibliografía Hidrológica 1940/1950 [incl.] [and] 1951/1952 [incl.]. both pub. Madrid 1954. 14 p.

Sweden. Hydrologisk Bibliografi, v. 15-19, 1948/1952 [incl.]. pub. 1954. 23 p.

Switzerland. Hydrologische Bibliographie, Jahrgänge 10, 1948/1952. pub. 1954?

(For other titles in this series, see 6A-78, Jan. 1955, M.A.B.) *Subject Heading: 1. Hydrology bibliographies.—D.M.G.*

7.1-74

551.5:01

†Uhorczak, Franciszek, Bibliografia prac prof. Eugeniusza Romera. [Bibliography of works of Prof. Eugeniusz Romer.] *Czasopismo Geograficzne*, Warsaw, 26(1/2):5-31, 1955. Lists 273 articles and monographs, 58 atlases and 138 maps. DLC. Also: Chałubiński, Aniela, Prof. Romer, człowiek i nauczyciel. [Prof. Romer, man and scientist.] *Ibid.*, p. 32-40. port. Also: Zierhoffer, August, Twórczość Eugeniusza Romera na polu geomorfologii. [Work of Romer in geomorphology.] *Ibid.*, 5. 41-65. Also: Malicki, Adam, Prace Eugeniusza Romera z zakresu kartometrii i morfometrii. [Cartographic and orographic work of E. Romer.] *Ibid.*, p. 66-75. 32 refs. Also: Kosiba, Aleksander, Działalność naukowa Eugeniusza Romera w dziedzinie klimatologii. [Romer's scientific activity in climatology.] *Ibid.*, p. 76-125. 124 refs. Also: Schmuck, Adam, Z działalności naukowej

Romera w zakresie meteorologii i klimatologii praktycznej. [Romer's scientific activity in practical meteorology and climatology.] *Ibid.*, p. 126-135. 9 refs., 2 eqs. Also: Zinkiewicz, Włodzimierz, **Romerowska regionalizacja klimatu Polski**. [Regionalization of Polish climate according to Romer.] *Ibid.*, p. 136-151. 12 refs. Also: Czysewski, Julian, **Geograficzna regionalizacja w twórczości Eugeniusza Romera**. [Romer's work in regional geography.] *Ibid.*, p. 152-166. 12 refs. Also: Maślankiewicz, Kazimierz, **Eugeniusz Romer jako bibliograf**. [Bibliographic activity of E. Romer.] *Ibid.*, p. 195-200. 19 refs. Also: Romer, Eugeniusz, **Fragment wspomnień**. [Memories.] *Ibid.*, p. 201-209. All articles in Polish; most articles with French summaries. *Subject Headings*: 1. Bibliographies 2. Bibliography of Eugeniusz Romer 3. Romer, Eugeniusz. I. Romer, Eugeniusz.—A.M.P.

7.1-75

551.5:016

†National report on meteorological research in Finland 1951-1954. *I.U.G.G. Bulletin of Information*, 3(6):244-247, July 1954. bibliog. p. 245-247, 47 refs. DWB—Institutes, publications, abstracts, studies in climatology, synoptic meteorology and aerology, numerical forecasting, general circulation, tropical meteorology, dynamics, instruments, phenology, and IGY proposals and a bibliography of 47 references to work done by 14 Finnish meteorologists. *Subject Headings*: 1. Meteorological research 2. Bibliography of Finnish meteorological literature 3. Finland.—M.R.

7.1-76

57.4:019.941 551.586:016

†Biological Abstracts, [Philadelphia], Vol. 27, No. 13, Dec. 15, 1953. pub. 1955. Subject index for vol. 27, 1953. DLC—In this voluminous and detailed subject index for 1953, pertinent references are listed under Climate, Temperature, Drought, Environment, Meteorology, Phenology, Altitude, Vernalization, Season, Microclimatic precip., Weather, Wind, Atmosphere, Light, Humidity, etc. A systematic and a regional index is also included. The literature of interest to meteorologists or climatologists is mostly along bioclimatological or biometeorological lines. (For abstract of journal, see 6A-17, Jan. 1955, MAB.) *Subject Headings*: 1. Abstract indexes 2. Bioclimatology bibliographies 3. Biological abstracts.—W.R.

APPLIED METEOROLOGY

AGRICULTURAL METEOROLOGY

See also: Soil moisture conservation (Cherkasov), 7.1-14.

7.1-77

551.5:631.43

Makarov, B. N., **Dykhaniye pochvy**. [Soil aeration.] *Priroda*, Moscow, No. 9:81-84, Sept. 1953. 4 figs., refs. DLC. Translation into Hungarian, by Sándor Gelléri, under title **A talaj lélekzése**, in *Időjárás*, 57(6):346-349, Nov./Dec. 1953. DWB—A general account of investigations of gaseous exchange between air and soil. Increasing soil temperature as well as sprinkling during dry periods intensified this exchange, which reached its maximum when temperature difference between air and soil exceeded 5°C. Photographs show the installations for determining the intensity of soil respiration on a dry field in spring and summer. Table gives the quantities of carbon dioxide discharged by soil on different plots during three months and the amount spent on building up the crops. These data prove that 38-72 percent of carbon dioxide spent on crops, can be supplied to the plant from the soil, which stresses the importance of intensifying the soil respiration. *Subject Headings*: 1. Gas exchange soil-atmosphere 2. Soil respiration 3. Carbon dioxide in soil.—N. T. Zikeev.

7.1-78

551.311.2:631.4

Hueck, K., **Eine biologische Methode zum Messen der erodierenden Tätigkeit des Windes und des Wassers**. [A biological method for measuring wind and water erosion.] *Deutsche Botanische Gesellschaft, Berlin, Berichte*, 64(2/3):53-56, April 1951. 2 figs., table. DLC—In the "Jarilla" shrub steppe in the province of Catamarca, Argentina, one of the most characteristic shrubs is *Larrea cuneifolia*. The roots of this shrub are laid bare by soil erosion. The amount of soil erosion can be determined by measuring the height of the exposed root,

the height of the hollock upon which the root stands and the age of the shrub. *Subject Headings: 1. Soil erosion measurement 2. Wind erosion.—I.L.D.*

7.1-79

551.58:64

Thornthwaite, C. W., *Climate in relation to planting and irrigation of vegetable crops*. *International Geographical Congress, 17th, Washington, Aug. 8-15, 1952, Proceedings.* (1952?), p. 46-51. 5 figs., 8 refs. **DLC**—Proposes to use the common English garden pea as a "climatic yardstick" for the measurement of plant development, considering the number of nodes as growth units. As a working hypothesis, these units are assumed to be proportional to the potential evapotranspiration which, according to Thornthwaite, is a function of temperature and daylength. A convenient slide rule or dial chart can be prepared which gives the harvest day as a function of the planting day for different crops at the given locality. *Subject Headings: 1. Agricultural climatology 2. Evapotranspiration 3. Plant development 4. Seabrook: N. J.—A.A.*

7.1-80

551.586:633.18:551.515.2(914) 551.582.1(914)

*Bantegui, Bernardino G., *Climatological planning in relation to rice culture in the central plain of Luzon*. *Natural and Applied Science Bulletin*, Manila, Quezon City, 12(2):149-184, April/June 1952. 9 tables, 6 figs., 9 refs. **DLC**—This study aims to determine statistically, the time when the Central Plain of Luzon is subjected to typhoons, to analyze the distribution of precipitation over this region and to develop a master schedule for planting early, medium and late maturing varieties of rice. The contents of this study include a description of the climate of Nueva Ecija, determination of the maximum-likelihood intervals and confidence limits of the intensity of typhoons, the destructiveness of remarkable typhoons, determination of the minimum intensity of a destructive typhoon, the determination of the period of occurrence of remarkable typhoons and the construction of the master schedule. Data are presented in graphs and tables. *Subject Headings: 1. Typhoon damage 2. Typhoon statistics 3. Agricultural meteorology 4. Climate of Nueva Ecija 5. Rice culture 6. Luzon, Philippine Islands.—I.L.D.*

7.1-81

551.582(671.8):551.311

Cabral, Amílcar Lopes, *Para o conhecimento do problema da erosão do solo na Guiné, pt. 1, Sobre o conceito de erosão*. [Knowledge of the problem of soil erosion in Guinea, pt. 1, Concept of erosion.] *Boletim Cultural da Guiné Portuguesa*, Bissau, 9(33):163-193, Jan. 1954. eqs. **DWB, DLC**—Rainfall erosion is discussed on p. 167-171, wind erosion on p. 172, climatic factors on p. 176-9 and control of erosion on p. 185-9. The principle scientific works in this field are reviewed in relation to local erosion processes. *Subject Headings: 1. Soil erosion 2. Portuguese Guinea.—M.R.*

7.1-82

632.72:621.396.826

Rainey, R. C., *Observation of desert locust swarms by radar*. *Nature*, London, 175(4445): 77, Jan. 8, 1955. 8 refs. **DWB**—Account of successful detection at night of a swarm of locusts by a ship radar set in the Persian Gulf. Associated radiosonde temperatures are quoted. *Subject Heading: 1. Radar echoes from locusts.—C.E.P.B.*

FIRE WEATHER

See also: Fire weather conference (U.S.W.B.), 7.1-56; Objective lightning forecasts, N. E. Washington (Lindquist), 7.1-174.

7.1-83

551.515.3:632.187(797,795)

*Graham, Howard E. (U. S. W. B., Portland, Oregon), *Fire whirlwinds*. *American Meteorological Society, Bulletin*, 36(3):99-103, March 1955. 2 tables, 12 refs. **DWB**—The nature of fire whirlwinds is discussed and 28 cases which have been reported in forests of western Washington and Oregon in 1951-53 are tabulated to show time of season, duration of whirlwinds, aspect of topography, wind speed and direction at top of ridge, diameter and height of whirl, size of debris picked up and location of fire. It was found that the most favorable location is a lee slope near the ridge top (20 out of 28) and that the wind velocity above the ridge top is a determining factor. Aerodynamic theory agrees with

observed facts. The whirls range in size from a few feet (as in dust devils) to hundreds of feet, and in height up to 4000 ft. Greatest speed is near center of whirl. Pressure reduction over mountain ridge (equal to square of wind speed) is more important than steep lapse rates (which are present wherever fire is hot). *Subject Headings: 1. Forest fire whirlwinds 2. Whirlwinds 3. Washington 4. Oregon.—M.R.*

7.1-84

551.5:632.187

*Canada. Dept. of Resources and Development. Forestry Branch, **Forest Fire losses in Canada, 1951.** Ottawa, 1952. 10+p. 6 tables, graphs. DWB—Data on number of forest fires and losses due to fires, for 1951 compared with 20 years average, are analyzed according to causes of fires, month of year and province. Lightning is not a major factor in Canada but is the cause of more fires than any other single factor in the province of British Columbia and is of considerable importance in Ontario, but in the other provinces is of negligible importance. Weather conditions for the season in each province are described in connection with fires in 1951. *Subject Headings: 1. Fire weather 2. Lightning 3. Canada.—M.R.*

7.1-85

551.5:632.187

*Lindenmuth, A. W., Jr.; Keetch, J. J. and Nelson, Ralph M., **Forest fire damage appraisal procedures and tables for the Northeast.** U. S. Forest Service. Southeastern Forest Experiment Station, Asheville, N. C., Station Paper, No. 11, Sept. 1951. 28 p. 3 figs., 7 tables. DWB—Fire damage and danger statistics for 14 northeastern states (1943-49) are analyzed, summarized and presented in graphs and tables. Results of comparisons of burning index with actual damage are also evaluated. Area embraces Virginia to Maine. *Subject Headings: 1. Fire danger rating 2. Northeastern United States.—M.R.*

7.1-86

634.98

Kelsey, Kathleen E. and Clarke, L. N. (*Div. of Forest Products, Melbourne*), **Effect of temperature and initial moisture content on the heat of wetting of wood.** *Nature*, London, 176(4471):83-84, July 9, 1955. 2 figs., 6 refs., eq. DWB—Heat of immersional wetting of klinki pine decreased to zero with decreasing moisture content. The specific heat of sorbed water between 5°C and 25°C at small moisture contents is 1.13 and is independent of temperature within limit of error. *Subject Heading: 1. Wetting of wood.—C.E.P.B.*

7.1-87

551.5:632.187:06

*Villeneuve, G. Oscar, **Application de la météorologie par The Laurentian Forest Protective Association Limited.** [Application of meteorology by the Laurentian Forest Protective Association, Limited.] *Quebec (Province). Bureau de Météorologie, Bulletin*, No. 23, 1953. 5 p. 36 tables, 11 refs. DWB—Report on stations, equipment at each, and activities of the fire weather service in Quebec and the history of that service. *Subject Headings: 1. Fire weather services 2. Laurentian Forest Protective Association, Ltd. 3. Quebec.—M.R.*

7.1-88

551.5:632.187

*Villeneuve, G. Oscar (*Dir. Bur. of Meteorology, Quebec*), **Les dangers d'incendie forestier.** Squatteck, Cté Temiscouata, P.Q. [Forest fire hazard at Squatteck, Temiscouata County, Province of Quebec.] *Québec (Province). Bureau de Météorologie, Bulletin*, No. 24, 1953. 9 p. 13 tables, 10 refs. DWB—Monthly mean frequencies (May-Oct.) of inflammability values are tabulated, graphically presented and commented on. The values were computed according to a modified version of the aridity index developed by J. G. WRIGHT and H. W. BEALL (1938). The study covers the period 1948-1953 for different types of forest cover at Squatteck, Canada. *Subject Headings: 1. Fire danger rating 2. Temiscouata County, Quebec.—G.T.*

7.1-89

551.5:634(714) 551.509.58:632.187

Villeneuve, G. Oscar, **Forest meteorology in Quebec.** *Quebec (Province). Bureau de Météorologie, Bulletin*, No. 1, n.d. 2nd ed. 23 refs. French summary p. 216-217. Reprinted from the *Forestry Chronicle*, Toronto, 19(4):203-218, Dec. 1943. DWB—After giving the history of fire weather forecasting in the U. S. and a survey of the various meteorological services operating in the Province of Quebec and outlining their activities the author describes

the Wright inflammability index which has been used since 1936 at the weather bureau of the Forest Protection Service. A forecasting method (similar to that developed by EMMONS of New York Univ.) is described and suggested for adoption by the For. Prot. Serv. The establishment of a Provincial Meteorological Bureau is announced for the near future. *Subject Headings*: 1. Forest meteorology 2. Fire weather forecasting 3. Meteorological services 4. Wright inflammability index 5. Quebec (Province), Canada.—G.T.

AERONAUTICAL METEOROLOGY

See also: Aviation meteorology (Babikov), 7.1-16; Aircraft damage (Jenkins), 7.1-293

7.1-90

551.5:06:629.11

Meteorological Committee [of the ICAO], Mr. R. C. Graham, Chairman, Mr. P. Leclercq, Vice-chairman. *International Civil Aviation Organization, Montreal, ICAO Bulletin*, 9(10): 21-22, Dec. 1954. DWB—Problems such as (1) developing WMO code for reporting weather phenomena observed on radar scopes of ocean weather ships; (2) adding radar/radio wind observations at Bear Island, Jan Mayen, Coral Harbor, Baker Lake, Tromsø, etc.; (3) improving accuracy of radiosonde observations up to 17 km; (4) hourly observations at stations on Greenland and Iceland; (5) exchange of forecasts and reports from airports; (6) improving exchange of basic meteorological data and (7) flight advisory service were considered at the 3rd N. Atlantic Regional Air Navigation meeting at Montreal, Oct. 5-29, 1954. *Subject Headings*: 1. Airways meteorological services 2. ICAO meetings 3. North Atlantic.—M.R.

7.1-91

551.5:629.13

Everson, Clarence E. (*Directorate of Climatology, U. S. AWS*), **Autumn flying hazards: Flying Safety**, Wash., D. C., 10(9):14-16, Sept. 1954. fig. DWB—A large 2-page schematic chart of the U. S. shows the major hazards for autumn flying in various sections of the country, (rain in the Pacific Northwest, hurricanes in the Southeast, stratus in California and thunderstorms in the Midwest, etc.). The greatest hazard has been unfavorable surface winds (crosswinds, gusts, etc.), and these contributed to accidents in the South Central and East Coast States more often than in other sections. *Subject Headings*: 1. Flying hazards 2. Aviation meteorology 3. United States.—M.R.

7.1-92

551.515.4:629.13

Johnson, J. W., **Thunderstorm flying**. *Flying Safety*, Wash., D. C., 10(9):5-6, Sept. 1954. 3 figs. Also: **R Thunderstorms**. *Ibid.*, p. 2-4. diagr., photo. DWB—Thunderstorm structure, frequency by seasons and flying hazards associated with thunderstorm activity in the U. S., is reviewed for the benefit of pilots. Charts show seasonal frequency and hazard in the various states of the U. S. Turbulence is said to be the chief factor in thunderstorm hazard to aircraft. *Subject Headings*: 1. Thunderstorm hazard for aircraft 2. Thunderstorm frequencies.—M.R.

7.1-93

551.506:797.55(410)

§Wallington, C. E., **Championship weather**. *Gliding*, London, 4(3):102-103, Autumn 1953. 10 charts. DWB—Day-by-day weather development over Great Britain during the 1953 gliding championships (July 25-Aug. 3) is described with particular attention to pressure, wind and clouds, especially over Camphill. Surface pressure charts for 1 p.m. of each day are presented. *Subject Headings*: 1. Gliding 2. Camphill, England.—G.T.

7.1-94

551.524.7:629.13

Lina, Lindsay J. (*Langley Aeronautical Lab., Langley Field, Va.*), **Measurements of pressure and temperature for appraisal of the temperature method of airspeed calibration in the lower stratosphere**. *U. S. NACA, Technical Note*, No. 3075, March 1954. 12 p. diagrs., photo. DWB—An investigation was made to determine whether the temperature and pressure conditions in the lower stratosphere would meet the requirements of the temperature method for accurate calibration of airspeed installations. Measurements of temperature and pressure were made in flights of swept-wing fighter airplane on

four clear days in March and April 1953 over land near Langley Field, Virginia. The results indicated that, although the temperature lapse rate was favorable to the method, large and erratic variations of temperature with time and distance precluded accurate calibration. Unfavorable atmospheric conditions had also been found previously in an investigation of the upper troposphere. *Subject Headings: 1. Upper air measurements 2. Airspeed measurement.*—NACA abstract.

7.1-95

551.5:629.13

§Seilkopf, Heinrich, **Meteorologische Navigation**. [Meteorological navigation.] *Deutsche Akademie der Luftforschung, Munich, Schriften*, No. 21, Sitzungsperiode 1940/1941, pub. 1940. 4 p. 38 figs. (incl. photos), tables, 16 refs. **DLC**—Problems of long distance (Grossnavigation) meteorological navigation (wind, cyclones, cloud systems), and of local navigation (Kleinnavigation) such as thunderstorms, icing, turbulence, orographic effects and fog are discussed in this beautifully illustrated monograph. Actual synoptic situations are analyzed, cloud photographs presented and paths of numerous transatlantic flights shown on charts and discussed. *Subject Headings: 1. Aeronautical meteorology 2. Transoceanic air navigation.*—M.R.

INDUSTRIAL AND MEDICAL METEOROLOGY

See also: Burning by damp (Rodewald), 7.1-108.

7.1-96

551.46:620

Spilhaus, Athelstan F., **Sea and air resources**. *Geographical Review*, N. Y., 44(3):346-351, July 1954. **DLC**—A broad survey of possible uses of water, solar energy and ocean resources for increasing human welfare during the next half-century. Conservation of water by reducing evaporation or stream flow into sea, and other hydrologic and oceanographic projects which need intensive and coordinated research by scientists, technologists and engineers in every field (fisheries, hydrology, meteorology, geography, etc.) is discussed in some detail. *Subject Headings: 1. Research programs 2. Oceanographic research.*—M.R.

7.1-97

551.5:595.77

Thompson, B. W., **Meteorology and the tsetse-fly**. *Weather*, 10(8):249-255, Aug. 1955. 6 photos, 6 refs. **DWB**—The tsetse fly is the carrier of human and animal trypanosomiasis. The habits of various species and their response to humidity and temperature are discussed. Control is tried by discriminative clearing of trees and by spraying from aircraft (if turbulence permits) or from a car. *Subject Heading: 1. Tsetse fly.*—C.E.P.B.

7.1-98

551.586:539

"Creeping suicide." *Science News Letter*, 67(3):35, Jan. 15, 1955. **DLC**—Quotes controversial statements by several authorities concerning a possible large-scale biological effect following extensive atomic explosions. *Subject Heading: 1. Atomic radiation effects.*—G.T.

7.1-99

613.7

Silva Ferrer, Manuel, **Hibernación artificial**. [Artificial hibernation.] *Revista Meteorológica*, Montevideo, 13(46):3-18, June 1954. **MH-BH**—The surgical treatment called artificial hibernation, as practiced by LABORIT, is described. It consists of a combined use of drugs and refrigeration, resulting in partial anesthesia. The physiological processes involved in this technique are discussed in detail. The treatment has both preventive and curative applications in surgery. *Subject Heading: 1. Artificial hibernation.*—G.T.

MARINE METEOROLOGY AND OCEANOGRAPHY

See also: Ocean floor (Pettersson), 7.1-7; Oceanography (Pettersson), 7.1-10; Ocean current data (Ekman), 7.1-26.

7.1-100

551.582.2(26)

§*Hamburg. Deutsches Hydrographisches Institut, **Nordseehandbuch, Nördlicher Teil, Die Shetland und Orkney-Inseln und die Nordküste Schottlands**, 1936. [North Sea Hand-

book, Northern part. Shetland and Orkney Islands and the north coast of Scotland, 1936. Hamburg, 1952. 142 figs., unnumbered charts and tables. Its No. 2009. Also separately bound and laid in pocket: Its **Nachtrag 1953 zum Nordsee-Handbuch, Nördlicher Teil, 1936** (1953 supplement.) pub. 1953. 114 p. figs. DWB—On p. 30–59 is found a full discussion of wind, weather and synoptic conditions (storm frequencies and types illustrated by storm track and typical synoptic charts) in the northern North Sea from the Shetland and Orkney Islands down the east coast of England to northern Denmark and coast of Norway but with emphasis on the northwest portion of the North Sea. Wind frequency tables, frequency of fog in hours, precipitation amounts and frequency, etc. shown in tables and on monthly charts of North Scotland and the Shetland Orkney Islands taken from land and ship reports. On p. 14–21 of the supplement there are extensive tables of pressure, wind, temperature, storm cloud, fog and precipitation for ocean areas. *Subject Headings: 1. Coast pilots 2. Marine climatology 3. North Sea 4. Orkney Islands 5. Shetland Islands.*—M.R.

7.1-101

551.582.2(411)

*Hamburg. Deutsches Hydrographisches Institut, **Handbuch der Westküste Schottlands, 1936.** [Handbook of the west coast of Scotland, 1936.] 3d ed. Hamburg, 1953. 607 p. 125 figs., charts. Its No. 2023. Separately bound and laid in pocket: its **Nachtrag 1954 zum Handbuch Westküste Schottlands, 1936.** [Supplement 1954 to the Handbook.] Pub. 1954. 85 p. figs. DWB—Cool summers, mild winters, much rain and frequent storms are characteristic of the west coast of Scotland. Information on climate, wind and weather is given. Included on p. 30–41 are the following: 1) Air temperature table showing mean monthly and yearly temperatures with yearly range at 5 points on the coast. It is pointed out that extreme temperatures in individual years may differ greatly from the average. 2) Air pressure (p. 31) with table of mean monthly and yearly pressure in mb at Stornway for the period 1881–1915. 3) Winds (p. 31–32) with table of frequencies of wind directions by seasons at Stornway (1876–1915), Castle Bay (1908–1926) and Tiree (1927–1932). 4) Storms, with frequency by months shown on charts (pp. 34–35). 5) Weather conditions influenced by low pressure area in mid-western Scotland are described on p. 33 and p. 38 and shown on weather maps. 6) Precipitation is discussed and tables show the mean monthly and annual amount of precipitation and number of diagrams with precipitation at 5 points on the coast. Snowfall, sleet and hail are also discussed. 7) Duration of sunshine. 8) Fog, with obstruction of visibility by snow or rain, mean frequencies of visibility by seasons at 3 localities of the coast tabulated on p. 40. 9) Drifting ice (p. 41) has been encountered farther south than before. Surface temperature of sea water, its salinity and density are discussed and shown in tables and maps on p. 42 to 50. *Subject Headings: 1. Climate of West Scotland 2. Coastal climates 3. Climatic data 4. West Scotland.*—A.M.P.

7.1-102

551.582.2(66)

*Hamburg. Deutsches Hydrographisches Institut, **Handbuch der Westküste Afrikas, I. Teil, von Kap Spartel bis Calabar River, 1937.** [Handbook of the West coast of Africa, Pt. 1, from Cape Spartel to Calabar River, 1937.] Hamburg, 1953. 532 p. 82 figs., tables, charts. Its No. 2062. Separately bound and laid in pocket: Its **Nachtrag 1953 zum Handbuch der Westküste Afrikas, I. Teil, 1937.** (1953 Supplement) pub. 1953. 115 p. figs. DWB—The chapter dealing with climate, under the title **Wind and Weather** is found on p. 32 to 69. The west coast of Africa from Cape Spartel to Fernando Póo is divided into 4 different climatic zones or sections, as follows: 1) Cape Spartel to Cape Ghir with warm weather—dry in summer and changing in winter (p. 38–45); 2) from Cape Ghir to Cape Verde with very sparse rainfall and desert like steppes, p. 45–55; 3) from Cape Verde to Canaries tropical land with a summer rainy period (p. 55–60) and 4) from Canaries to Fernando Póo (Higher Guinea) a damp tropical land with abundant rains in all seasons (p. 60–69). The information on various elements of the climate is presented with data in the form of tables and charts for each of the sections. They deal with 1) air temperature (tables of monthly and yearly means in °C and air pressure (tables of monthly means); 3) wind conditions (tables of wind direction frequencies), storms land and sea winds (trade winds, harmattan); 4) precipitation (mean monthly amounts), storms and thunderstorms; 5) cloudiness; 6) fogs; 7) thunderstorms; 8) dust; and 9) general weather conditions. Synoptic charts are presented to illustrate

a severe cyclonic storm in the Gibraltar area on Jan. and 2) Azores high on July 3, 1955.
Subject Headings: 1. Climate of West Africa 2. Coastal climates 3. Climatic zones 4. West Africa.—*A.M.P.*

7.1-103

551.509.1(02):551.46

U. S. Weather Bureau, **International code for radio weather reports from ships, effective Jan. 1, 1955.** rev. Wash., 1955. 24 p. forms. **DWB, DLC**—Based on IMO 1947 code, adopted Jan. 1, 1949, and revised to include changes recommended by WMO for use on or after Jan. 1, 1955, contains codes, tables and specifications in enough detail so ships' officers can readily code or decode messages broadcast from any ship of any nationality. **Subject Headings:** 1. IMO marine code, 1949 2. WMO marine code—Jan. 1955 3. Code manuals.—*M.R.*

7.1-104

551.509.21(26)

Rodewald, M., **Zur Zeichnung von Bordwetterkarten.** [On drawing ships' weather charts.] *Wetterlotse*, No. 87:98-104, May 1955. fig. **DLC**—Argues that ships' charts should be consistently drawn with 5 mb isobars. Transmissions with 4 or 8 mb isobars can be readily converted but some pitfalls in drawing isobars and fronts are described. **Subject Headings:** 1. Synoptic charts 2. Marine meteorology.—*C.E.P.B.*

7.1-105

551.5:629.12

Rodewald, Martin, **Navigating with the weather.** *Wetterlotse*, No. 58:129-134, June 1953. fig. **Navigation nach Wetterlage des D. "Alstertor."** [Navigation according to the weather situation.] *Ibid.*, p. 134-135. **DWB**—The first discusses an article by LOUIS ALLEN (*A.M.S.*; *Bul.* Sept. 1951; see 4.4-168, April 1953, *MAB.*) on the necessity of planning routes to take advantage of the winds. The second refers to a case on Dec. 21-22, 1952 (*Wetterlotse*, No. 55). **Subject Heading:** 1. Marine navigation.—*C.E.P.B.*

7.1-106

551.509.31:629.12

Rodewald, M., **Wetternavigation auf der Ausreise nach Westindien.** [Weather navigation on the journey out to the West Indies.] *Wetterlotse*, No. 72:132-136, June 1954. fig. **DWB**—Example of the successful use of synoptic charts to select the most favorable course past developing depressions. **Subject Headings:** 1. Synoptic analyses 2. Marine navigation.—*C.E.P.B.*

7.1-107

551.5:910.45:629.125.1(261)

Bombard, Alain, **Across the Atlantic by raft.** *Marine Observer*, 24(164):93-96, April 1954. 2 figs., photo. **DLC**—Brief account of voyage Gibraltar-C. Verde Islands-Barbados on Aug. 24-Dec. 22, 1953, with remarks on weather phenomena and the trade winds. **Subject Headings:** 1. Voyages 2. North Atlantic.—*C.E.P.B.*

7.1-108

368.10:629.123:546.46

Rodewald, M., **Brand durch Nässe.** [Burning by damp.] *Wetterlotse*, No. 89:131-134, July 1955. **DWB**—An unusual fire at sea was attributed to wetting of a deck-load of magnesium powder, which combined with the oxygen of the water. **Subject Heading:** 1. Magnesium cargo fires.—*C.E.P.B.*

7.1-109

551.553.8:656.608

Brown, P. R., **The loss of the Sao Paulo.** *Marine Observer*, 25(168):108-113, April 1955. 2 figs. **DLC**—Description of the loss of the ship while under tow on Nov. 4 or 5, 1951. Two weather charts of the North Atlantic showing gale conditions are reproduced. The loss may have been caused by the synchronism of the period of roll of the ship with the period of the waves. **Subject Headings:** 1. Gales 2. Marine disasters 3. North Atlantic.—*C.E.P.B.*

7.1-110

551.556.1:656.6

§Rodewald, Martin, **Das Ende von Roderigo and Lorella.** [The end of the *Roderigo* and *Lorella*.] *Wetterlotse*, No. 84/85:56-66, March 1955. 2 figs. **DWB**—Two British trawlers

sank off northwest Iceland on Jan. 26, 1955, owing to becoming top-heavy through heavy icing. There was a severe gale from N.E. of which warning was given. The synoptic chart is drawn from the Iceland observations and those of ships in the neighborhood. *Subject Headings: 1. Marine disasters 2. Gales.—C.E.P.B.*

7.1-111

551.5:656.6(435.1)

Rodewald, M., *Ein Oktober-Rückblick an Schleswig-Holsteins Westküste*. [Looking back at October on the west coast of Schleswig-Holstein.] *Wetterlotse*, No. 81:276-278, Dec. 1954. DWB—Brief summary of weather reported by storm warning stations, with list of ships lost in storm of Oct. 6. *Subject Headings: 1. Marine disasters 2. Schleswig Holstein.—C.E.P.B.*

7.1-112

551.509.1:656.60(3)

Rodewald, Martin, *Ein Motorsegler ging verloren. Meteorologische Quintessenz eines Seemannsverbandung*. [A motor ship is lost. Meteorological quintessence of a marine officer's procedure.] *Wetterlotse*, No. 73:142-148, July 1954. DWB—Small ship lost near German coast in western Baltic on Jan. 20, 1954. The weather forecasts were accurate, but although the ship had a radio they were not listened for. *Subject Headings: 1. Radio weather broadcasts 2. Marine disasters.—C.E.P.B.*

7.1-113

551.46.018 551.46:532.5(9)

Kalle, Kurt, *Zur Frage der inneren thermischen Unruhe des Meeres*. [On the question of internal thermal agitation in the sea.] *Deutsche Hydrographische Zeitschrift*, 6(4/6):145-170, 1953. 30 figs., table, 4 refs. Summaries of each section in German, English and French. DWB—Description of a series of investigations into nature and behavior of thermal discontinuities in the sea, mostly in the Baltic in calm weather. Records of vertical and horizontal variations of temperature were obtained with thermocouples. A number of records are shown, indicating that the surface waters are stratified in layers from a few meters to centimeters thick. The interfaces undergo small oscillations but the stratification is rather persistent, though there is some vertical interchange or turbulence. "Streak" measurements showed both progressive waves and cellular stationary waves. Periods vary from seconds to several minutes and amplitudes from decimeters to 2 m, and interference gives the appearance of a disturbed layer. *Subject Headings: 1. Internal waves 2. Oceanographic instruments 3. Baltic.—C.E.P.B.*

7.1-114

551.501.6:551.526.6(261)

Sandström, Johan Wilhelm, *The working up of sea-surface temperatures. International Council for the Exploration of the Sea, Rapports et Procès-Verbaux des Reunions*, 112:63-75, Feb. 1943. 4 tables, charts. DLC, DWB—Monthly average sea surface temperatures in 1° squares given for the period 1900-1937, covering the northeast Atlantic from 33°N to 67°N and showing also unsmoothed isotherms, deviating greatly from the temperature distribution published previously in various atlases. The basic data were supplied from the International Hydrographical Card Index. A classification of principal squares is proposed, superior to the commonly used Marsden squares. *Subject Headings: 1. Sea surface temperatures 2. Northeast Atlantic.—A.A.*

7.1-115

551.501.42:536.421:546.212

*Zerbe, Walter Benjamin and Taylor, Charles Baker, *Sea water temperature and density reduction tables. U. S. Coast and Geodetic Survey, Special Publication*, No. 298, 1953. 21 p. 4 figs., ref., 5 tables. DLC—Tables are supplemented by detailed explanation and illustration of their use. Nomogram shows freezing point of sea water with various salinities from 0 to -2.5°C. *Subject Headings: 1. Reduction tables 2. Salinity effects 3. Freezing point of sea water.—M.R.*

7.1-116

551.35

†Arrhenius, Gustaf (*Scripps Inst. of Oceanog., La Jolla, Calif.*), *Origin and accumulation of aluminosilicates in the ocean. Tellus*, 6(3):215-220, Aug. 1954. fig., 23 refs., 3 eqs.

LC—The basic assumptions used by B. KULLENBERG in his attempt to calculate the probable magnitude of the variations of the rate of accumulation of clay appear unrealistic in the light of present knowledge, and consequently the results are hardly applicable. His assumptions imply that the sizes of the clay particles now observed in samples from the ocean floor have remained essentially unchanged during transport and deposition. Most probably, however, the marine clays represent the end product of precipitation and coarsening processes, the initial particles partly being of ionic and molecular size. Changes in the rate of deposition of aluminosilicates in eupelagic areas are rather determined by physico-chemical properties of the water than by changes in the influx to the ocean. Such changes are supposed to be practically equalled out in the neritic and hemipelagic environment. *Subject Heading: 1. Marine clays.*—*Author's abstract.*

7.1-117

551.526.6:536.421

*Nelson, Kurt H. and Thompson, Thomas G. (*Dept. of Oceanog., Univ. of Wash., Seattle*), **Deposition of salts from sea water by frigid concentration.** *Journal of Marine Research*, 13(2):166-182, Nov. 1954. 11 figs., table, 9 refs., eqs. **DWB**—The order of formation of solid phases when sea water freezes has been investigated down to -40°C . About 80% of the water present in the original quantity of sea water is transformed into ice before the first salt crystallizes. Sodium sulfate decahydrate, the first salt formed, begins to separate at -8.2°C and the sulfate concentration in the brine decreases markedly. When the freezing point reaches -22.9° , sodium chloride dihydrate precipitates in large quantities. The concentration of sodium in the brine decreases rapidly as the freezing point decreases below -22.9°C . There is a decrease in the concentrations of magnesium and potassium in the brine below -36.0°C when potassium chloride and magnesium chloride dodecahydrate precipitate. Thermal analyses indicate that calcium chloride hexahydrate begins to form at -54°C . The last of the brine probably solidifies at a temperature slightly below -54°C . *Subject Headings: 1. Freezing of sea water 2. Salt deposition.*—*Authors' abstract.*

7.1-118

551.464

Rattray, Maurice, Jr.; Seckel, G. R. and Barnes, C. A., **Salt budget in the Lake Washington Ship Canal system.** *Journal of Marine Research*, 13(3):263-275, Dec. 1954. 6 figs., tables, 3 refs. **DWB**—Salt water enters the freshwater system of Lake Washington, Montlake Canal, Lake Union, Fremont Canal, and Salmon Bay through the U. S. Government locks at Ballard. During the summer season of heavy lock operation and small runoff, salt water accumulates in Lake Union and Lake Washington. Lake Union is flushed corresponding to the rates of flow during periods of high runoff, and Lake Washington is flushed only during the period of winter overturn. With increased chlorinity in the bottom waters, overturn and therefore flushing may be prevented. At present approximately 25% of the salt in Lake Washington is flushed out annually. *Subject Headings: 1. Salt water infiltration 2. Lake Washington 3. Lake Union.*—*Authors' abstract.*

7.1-119

551.556:551.464

Wyrtki, Klaus, **Der grosse Salzeinbruch in die Ostsee im November und Dezember 1951.** [Great salt influx in the Baltic Sea during Nov. and Dec. 1951.] *Kieler Meeresforschungen*, 10(1):19-25, 1954. figs., 8 refs. **DWB, DLC**—The synoptic situation associated with the salt influx is described. The analysis of weather situation and the concomitant water behavior indicate that the interaction of three fundamental elements was responsible for the salt influx. These are viz., the persistence of west weather for three weeks, low water level in the Baltic and the preceding east weather situation and the high salt content in the Kattegat deep and its extensive penetration into the Baltic. *Subject Headings: 1. Salt water infiltration 2. Meteorological influences 3. Baltic Sea.*—*I.L.D.*

7.1-120

551.5:525.6

Conover, Shirley A. MacMillan (*Yale Univ.*), **Observations on the structure of red tides in New Haven Harbor, Connecticut.** *Journal of Marine Research*, 13(1):145-155, Oct. 1954. figs., 3 tables, 6 refs. **DWB**—Observations were made on noncatastrophic red tides in New Haven Harbor, Connecticut, in the summers of 1952 and 1953. Hydrographic, chemical and

biological factors were measured and weather conditions were taken into account. Oxygen production-consumption experiments and nutrient enrichment experiments were also carried out. High concentrations of red tide organisms, here two species of *Goaulax*, were found to be associated with stable water masses of inner harbor origin. The configuration of the harbor permits the development and retention of water masses; this tendency is reinforced by large volumes of nutrient-rich fresh water entering the inner harbor, by certain wind patterns, and by high radiation values. Adequate time, illumination, nutrients, and favorable temperatures are essential for red tide development. Stable, discrete, nutrient-rich water masses in the sea adequately meet these conditions. *Subject Headings: 1. Red tide structure 2. New Haven, Conn.—Author's abstract.*

7.1-121

551.46 551.582.3(265) 551.506(26)

*Japan. Hydrographic Dept., **Hoppo Kaimen Suirō Shiryo**. [Hydrographic data for the northern part of the North Pacific.] Its *Pub. No. 1, 1941*. 40 p. of text. 69 maps (fold.). In Japanese. **DLC**—A series of medium scale folded maps of the Okhotsk Sea and Bering Sea and Gulf of Alaska, with isopleths or data, storm tracks or other presentation of data on: cyclone trajectories (Chart 3); monthly cyclone frequencies (Charts 4-15); pressure and wind, cloudy days, days with fog, description of fog regimes (Charts 16-39); ocean currents (Charts 40-41); waves (Charts 42-45); relation between wave height, period and wind speed (Chart 46); and relation between wave length, ratio of wave length and height and wind speed (Chart 47). *Subject Headings: 1. Marine meteorological data 2. Marine atlases 3. Hydrographic charts 4. North Pacific 5. Okhotsk Sea 6. Bering Sea.—M. A. and H. Arakawa.*

7.1-122

534:551.4

Sukharevskii, I. U. M., **Nekotorye osobennosti nabliudaemoi reverberatsii moria**. [Some peculiarities of sea reverberations.] *Akademiia Nauk SSSR, Doklady, Nov. Ser.*, 60(7):116-1164, June 1948. 3 figs., 4 refs., 2 eqs. **DLC**—Some peculiar cases of sea reverberation observed during experimental studies of the phenomenon are described and discussed to determine the correctness of an earlier theory of this phenomenon (1947). Cases deal with the question of the role of dispersion found in: 1) the surface layer of a deep sea (using the vibrator at various depths); 2) unevenly distributed swelling sea—the sound beam alternately directed along and across the waves; 3) in shallow sea where the laws of drop and increase of bottom reverberations change in a large range depending on the bottom relief and bottom floor. The author presents data on the dependence of the intensity of reverberation on the duration of the sending and discusses an experiment of emission of sound, after which the vibrator was immediately diverted, etc. Author stresses that all experiments confirmed the correctness of this theory. *Subject Headings: 1. Submarine acoustics 2. Reverberation in the sea.—A.M.P.*

METEOROLOGICAL OBSERVATIONS AND INSTRUMENTS

METHODS OF OBSERVATION

See also: **Snow & ice study** (Japanese Soc. of Snow & Ice), 7.1-3; **Solar observatories**, 7.1-44; **Solar observatories**, 7.1-45; **Manila Obs.** (Repetti), 7.1-46; **Liverpool Obs.** (Reynolds), 7.1-47; **Duneland Obs.**, 7.1-48; **San Miguel Obs.** (Yribery), 7.1-49; **Mt. Washington Obs.** (Bent), 7.1-50; **Blue Hill Met. Obs.**, 7.1-51; **School weather station** (Richardson), 7.1-63; **Sea surface temp.** (Sandström), 7.1-114; **Sea water temp.** (Zerbe, Taylor), 7.1-115; **Soil moisture measurem.** (Heigel), 7.1-310.

7.1-123

551.501:551.578.4

*Federal-State Cooperative Snow Surveys, **Summary of snow survey data for the State of Utah (including Bear River Drainage in Idaho and Wyoming, 1924 through 1954)**. Salt Lake City, Soil Conservation Service, Aug. 1954. 98 p. numerous tables. Also issued as *Utah. Agricultural Experiment Station, Logan, Mimeographed Series*, No. 390. **DWB**—Monthly snow depth and water content of snow on numerous snow courses in Utah are given.

tables for each year of record and are discussed. Records date back to 1924 in some cases. History, location, exposure and effect of wind, interception by forests and seasonal melting noted for each course. Annual forecasts of water supply based on snow survey have been issued about the first of April each year since 1925. Over 100 snow courses are now in active operation. Measurements are made within 4 days of Jan. 1, Feb. 1, March 1, April and May 1. *Subject Headings:* 1. Snow survey data 2. Water supply forecasts 3. Utah.—M.R.

7.1-124

551.501.4:519.28

Schumann, T. E. W., **Graduation of twelve monthly values of any meteorological element.** *South Africa. Weather Bureau, Notes*, 3(2):104-111, 1954. 8 tables, 2 figs., eqs. DWB—The graduation of twelve monthly data is discussed. By means of a numerical example it is demonstrated that the standard error of a series of data is reduced by applying the proper smoothing formula and that, in this fact, lies the main value of graduation. WHITTAKER'S method of graduation, based upon probability theory is applied to a set of twelve data, and numerical tables are presented by means of which the graduation can be performed rapidly to any degree of smoothness desired. It is pointed out that the specific smoothing formula could be selected so that the standard deviation of the graduated from the crude data is equal to the standard error of the crude data, and auxiliary tables are provided to facilitate the choice. *Subject Headings:* 1. Whittaker's method of graduation 2. Curve smoothing.—*Author's abstract.*

7.1-125

551.501.45:551.577.2(569.4)

Rosenan, Naftali, **One hundred years of rainfall in Jerusalem.** A homotopic series of annual amounts. *Israel Exploration Journal*, 5(3):137-153, 1955. 2 figs., 5 tables, 14 refs. Abstracted from reprint. DLC—Rainfall records in Jerusalem are continuous from Jan. 1846 except for 2 breaks. The various records and sources of error are discussed and a series of annual values in mm at English Mission Hospital (Old City) reconstructed for rainfall years 1846/47 to 1953/54. The average for the whole period is 560 mm compared with 536 mm for 1901-30. *Subject Headings:* 1. Rainfall of Jerusalem 2. Jerusalem, Israel.—C.E.P.B.

7.1-126

551.501.83:551.515.4

Hay, D. R. and Hartz, T. R., **Thunderstorm signals at very-high frequency and ultra-high frequency.** *Nature*, London, 175(4465):949-950, May 28, 1955. fig., 3 refs. DWB—Shows records of reception of 49, 91, 173 and 492 Mc/s transmissions from a point 200 mi away during a thunderstorm in region of receivers. The normal slowly fading signals changed to a continuous series of rapid impulses, even when transmission stopped. *Subject Headings:* 1. Radio disturbances 2. Thunderstorm effects.—C.E.P.B.

7.1-127

551.501.83

Horner, F., **New design of radio direction finder for locating thunderstorms.** *Meteorological Magazine*, London, 83(983):137-138, May 1954. 2 figs., 3 refs. DWB—A smaller, simplified twin-channel cathode ray direction finder for frequencies of about 10 kc/s for locating thunderstorms is described. It is suitable for use in a van and in tropical climates. It was developed for the Meteorological Office by the Radio Research Organization of the Dept. of Scientific and Industrial Research. *Subject Heading:* 1. Radio direction finders.—C.E.P.B.

7.1-128

551.501.83:551.515.43

Horner, F. and Clarke, C., **Some waveforms of atmospherics and their use in the location of thunderstorms.** *Journal of Atmospheric and Terrestrial Physics*, 7(1/2):1-13, Aug. 1955. 2 figs., table, 17 refs. DWB—Types of waveforms recorded in S. England are illustrated. They include up to 40% of echo forms resulting from successive reflections between earth and atmosphere. Estimation of source distance from intervals between peaks is more accurate than calculation from simple reflection theory. A graphical method is described which may be used with about 3% of day and 5% of night records; with improved technique the latter may be doubled. Within a range of 2000 km at night and 500 (summer) to 1000 km (winter) the day distance can be determined within 30% (night) to 20% (day) but technique cannot yet replace a network of direction finders. *Subject Headings:* 1. Sferics thunderstorm location 2. Sferics waveforms.—C.E.P.B.

7.1-139

551.506.1(439.)

*Hungary. Országos Meteorológiai Intézet. Observatórium, Budapest, *Évkönyv* *Annales de l'Observatoire de l'Institut Météorologique Hongrois à Budapest*. [Annals of the Observatory of the Hungarian Meteorological Institute at Budapest.] Vol. 1, 1954. pp. 1954. 288 p. almost entirely tables. Title-page and preface in Hungarian and French. DWB—Contains (for Budapest) hourly pressure, temperature, relative humidity, wind direction and speed and precipitation data, thrice-daily values of same elements plus cloudiness, vapor pressure, sunshine duration, minimum radiative temperature each day at 5 cm; wind aloft observations and summaries for 8 stations in Hungary, radiosonde data for Budapest data for surface, 500, 1000, 1500, 2000, 3000, 4000, 5000 and 6000 geopotential m and for 1000, 900, 800, 700, 600, 500, 400, 300, 200 mb levels; ionospheric data for Budapest (hourly and mean daily, height of E layer, F1 and F2 layer and critical frequency of F2 layer in MHz from July–Dec. 1954). *Subject Headings*: 1. Annual meteorological reports 2. Upper air data yearbooks 3. Ionospheric data yearbooks 4. Budapest, Hungary.—*M.R.*

7.1-140

551.506.1:551.57

Rodewald, M., *Vom Niederschlagsgegensatz tropischer Küsten*. [Rainfall contrast of tropical coasts.] *Wetterlotse*, No. 91:166–167, Aug. 1955. 2 figs. DLC—Rainfall for June 1955 based on CLIMAT data is plotted for Madagascar (max. on E coast) and S. India (max. on W coast). *Subject Headings*: 1. Rainfall distribution 2. Climat reports 3. Madagascar 4. India.—*C.E.P.B.*

7.1-141

551.506.7(883)

*Surinam. Meteorological Service, Wind aloft summary. Aerodrome Zanderij (81225) Aug.–Oct. 1954. 3 pieces. entirely tables. Mimeo. DWB—For each month there are 4 sheets, one for each pibal hour (03, 10, 15 and 21) with the coded pibal messages for each day of the month listed chronologically. *Subject Headings*: 1. Upper air wind data 2. Zanderij Airport, Surinam.—*M.R.*

7.1-142

551.506.

Fuss, Franz, *Untersuchungen zur Frage der Messung von Knospendurchmessern*. [Investigations on measuring the diameter of buds.] *Angewandte Meteorologie*, 2(5):151–155, July 1955. 2 tables, 7 refs. MH-BH—The measurement of smooth buds (cherry, apricot, peach) with a sliding gage is very simple and repeated measures can be made. Some observations (April 24 to May 1, 1954) are tabulated and compared with their standard deviations. *Subject Heading*: 1. Phenological data.—*C.E.P.B.*

INSTRUMENT CARRIERS

See: Pilot balloon obs. (Iakobi), 7.1-28; Rocket-borne instruments (Slavin), 7.1-152; Airplane thermometers (Gt. Brit. Aeroplane & Armament Exp. Estab.), 7.1-154.

INSTRUMENTS

See also: Radiosondes (Beclitz), 7.1-8; Met. instruments & elements (Alföldy), 7.1-17.

7.1-143

551.508:629.13

Dykes, Christopher, Instrumentation for jet transports. *Aeronautical Engineering Review*, N. Y., 14(1):24–32, Jan. 1955. 3 figs. DWB—High speeds involved in jet transport flight call for complicated integrating type of recording instruments rather than single element visual instruments such as are in current use in conventional aircraft. There is a need for an accurate ambient temperature recording instrument so true air speed can be calculated without considering pressure (merely from effective or ram temperature of jet). Other instruments discussed are those for detecting air frame as well as turbine icing and measuring vertical acceleration. On Comet I type planes 2°C air temperature difference is equal to weight of 1 passenger on transatlantic flights, or to an equivalent amount of gas. If forecasts cannot be

ercise, reserve fuel must be carried to allow for margin of error. *Subject Headings:* 1. Jet aircraft instrumentation 2. Ice detection instruments 3. Temperature instruments for jet transports 4. Air-borne instruments.—*M.R.*

7.1-144

551.508.21

Georgi, Johannes, *Unsymmetrische Erwärmung und Abkühlung bei Strahlungsschreiben*. [Asymmetrical warming and cooling in radiation recorders.] *Germany. Deutscher Wetterdienst. Instrumentenamt Nord, Hamburg, Technische Mitteilungen des Instrumentenwesens*, No. 28:14-21, Oct. 1954. 3 figs., 8 refs., 2 eqs. *DWB*—The author considers the rate of warming and cooling and the asymmetry of natural radiation curves. The physical aspects of these processes are discussed and results of attempts to represent the asymmetry effect by means of measurements of an artificial light source with a pyrhelimeter are discussed. *Subject Heading:* 1. Pyrhelimeter errors.—*I.L.D.*

7.1-145

551.508.21

Georgi, Johannes, *Ein verbessertes Ångström-Kompensations-Pyrhelimeter nach E. Volochine*. [An improved Ångström compensation pyrhelimeter by F. E. Volochine.] *Meteorologische Rundschau*, 7(5/6):100-101, May/June 1954. 2 figs., 4 refs. *DWB*—The new model which was designed by VOLOCHINE in 1932 but is little known, is described. *Subject Headings:* 1. Ångström pyrhelimeter 2. Volochine pyrhelimeter.—*C.E.P.B.*

7.1-146

551.508.21

Greisen, Kenneth, *The use of quenching circuits with self-quenching counters*. Cornell Univ. Lab. of Nuclear Studies, Contract AF 19(122)-439, Scientific Report, No. 2, Jan. 1954. p. 4 figs., 7 refs., 2 eqs. *DWB*—The advantages associated with the use of a one-tube quenching circuit, to assist and hasten the termination of the discharge in self-quenching counters, are discussed in the light of tests performed at Cornell in connection with experiments carried out under the Air Force contract. In general, the quenching circuit was found to have both economic advantages and benefits in terms of performance of the counters. Two types of quenching are distinguished, depending on the duration of the quenching pulse; the different virtues and failings of these two types of external quenching are outlined. An appendix gives supplementary considerations on the motion of the charge sheath in externally quenched and in unquenched counters. *Subject Headings:* 1. Particle counters 2. Quenching circuits. *Author's abstract.*

7.1-147

551.508.21

Mrose, Helmut, *Ein Destillationspyranometer nach Bellani-Henry mit Schwarzglaskugel und kapillar wirkender Innenschicht*. [A Bellani-Henry distillation pyranometer with black glass sphere and capillary inner layer.] *Angewandte Meteorologie*, 2(5):147-151, July 1955. 4 figs., 5 refs. *MH-BH*—For medical climatology all the radiation received by a sphere free of space is important. For this purpose the vacuum distillation pyranometer (ethyl alcohol) is suitable. The instrument, exposure, graduation and calibration are described. The substitution of black for blue glass ensures that as much heat as possible is absorbed by the inner sphere. *Subject Heading:* 1. Bellani pyranometer.—*C.E.P.B.*

7.1-148

551.508.21

Reimann, H., *Temperungseinfluss auf das Widerstandsverhalten von aufgedampften Wismuthbolometern*. [Influence of tempering on the resistance conditions of the damped bismuth bolometer.] *Annalen der Physik*, 6th Ser., 16(1/2):52-58, 1955. 7 figs., 2 tables, 1 refs., 4 eqs. *Also:* *Untersuchungen am Wismuthbolometer bei rechteckig und sinusförmig modulierter Bestrahlung*. [Investigations of the bismuth bolometer with rectangular and sine-wave modulated radiation.] *Ibid.*, 59-67. 16 figs., table, refs., 6 eqs. *DLC*—The first paper deals with the dependence of the resistance of a bismuth bolometer on the thickness of the metal plate, variation of the temperature coefficient with temperature, and natural aging. The period of aging can be shortened by heat treatment. In the second paper the effect of modulated radiation falling on a bolometer at right angles is discussed theoretically. *Subject Heading:* 1. Bolometers.—*C.E.P.B.*

7.1-149

551.508.25:537.541

Gorczyński, Władysław, **Nouveaux modèles des solarimètres**. [New models of solarimeters.] *Acta Geophysica Polonica*, Warsaw, 1(2):94-99, 1953. 6 figs. In French; Polish summary p. 99. **MH-BH, DWB**—Solarimeters used in Poland are regularly made in Paris (Etablissements Jules Richard) and in Holland (Kipp & Zonen at Delft) according to models devised and tested at the Central Meteorological Institute of Poland or at the Maritime Observatory at Gdansk. A new model of a solarigraph (recorder) provided with a thermoelectric pile enclosed in vacuum is described and the recorder records illustrated. *Subject Headings: 1. Solarimeters 2. Gorczynski solarigraph.—A.M.P.*

7.1-150

551.508.25:537.541

Glaser, Donald A. and Rahm, David C. (*Randall Lab. of Phys., Mich. Univ., Ann Arbor*) **Characteristics of bubble chambers**. *Physical Review*, 97(2):474-479, Jan. 15, 1955. 4 figs. 7 refs. **DWB**—The bubble chamber is a new radiation detector in which ionizing events produce tracks consisting of strings of tiny bubbles in a superheated liquid. By means of fast flash photography, practically distortionless bubble tracks can be recorded for the study of high-energy nuclear events. A chamber six in. long has been constructed and chambers several feet long seem feasible, so the bubble chamber can have both high stopping power and large size. Liquids containing only elements of low atomic number can be used to minimize Coulomb scattering so that accurate magnetic curvature measurements can be made. Tracks of minimum ionizing particles contain up to 100 bubbles/cm and the bubble density varies with ionization density, thus making bubble counting a possible method for measuring ionization. The short sensitive and resetting times of bubble chambers tend to reduce background radiation problems and increase data collection rates for experiments with pulsed accelerators. Unfortunately the lifetime of the bubble nuclei seems to be too short to permit counter-controlled expansion after the passage of the particle to produce tracks. Therefore it is unlikely that the types of bubble chambers described here will be useful for cosmic ray experiments. *Subject Headings: 1. Bubble chambers 2. Radiation detectors.—Authors' abstract.*

7.1-151

551.508.25:551.594.51

Jones, A. Vallance and Gush, Herbert, **Auroral and night sky exposure register**. *Review of Scientific Instruments*, 25(9):928, Sept. 1954. 1 fig. **DLC**—A circuit diagram is presented and description furnished of a photoelectric device to be used for correct exposure in auroral spectral photography. Light from the auroral green line (isolated by an interference filter) is focused, by means of an objective lens, on a photomultiplier; the photocurrent is integrated by a condenser trigger counting circuit. During one year of operation the exposure register contributed to obtaining spectrophotographs of almost equal density from sources having widely different intensities. *Subject Headings: 1. Auroral spectrographs 2. Photoelectric receivers.—G.T.*

7.1-152

551.508.25:551.507.362

Slavin, Robert M., **Rocket-borne equipment for the measurement of infrared radiation**. *U. S. Air Force. Cambridge Research Center, Instrumentation for Geophysical Research*, No. 2. Feb. 1953; *AFCRC Technical Report*, 53-2. 19 p. 15 figs. (inc. photos), ref. **DWB**—The rocket-borne equipment described was designed to measure sky-background radiation in the region around 8000 Å and in the range from 3×10^{-12} to 3×10^{-7} watts/cm²/sq deg. The CE25V-A/B phototube used as the sensing element is magnetically modulated to provide a 120-cps signal to the three-stage amplifier. Rectifier-cathode-follower output circuits provide voltages for telemetering to ground stations during rocket flight. *Subject Headings: 1. Rocket-borne instruments 2. Radiation instruments 3. Infrared radiation measurement.—Author's abstract.*

7.1-153

551.508.25:551.521.7

Temple University. Research Institute, **Study of atmospheric temperature and meteoric content by ultrasonic techniques and development of special microphones**. Contract AF 19(504)-284, Final Report, [1954?]. 7 figs. (1 fold.), eqs.—The microphones used in measuring high intensity radiation are described with the aid of detailed drawings of the microphones.

and their mountings; also "complete drawings are given for the entire assembly, including the telefon carriage, which fits into the glass envelope. Reasons for the desirability of a six-channel recorder together with a complete schematic of such a recorder are included. Also brief descriptions of amplifiers and of FM in general are given." *Subject Headings: 1. Radiation measurement 2. High frequency radiation.*—Based on author's abstract.

7.1-154

551.508.26:551.507.352

Great Britain. Aeroplane and Armament Experimental Establishment, Boscombe Down, **Determination of the variation with altitude of the recovery factor of air thermometers.** *Report No. A.A.E.E./Tech/111*, Dec. 17, 1954. 13 p. 15 figs., 10 tables, 5 refs. Mimeo. **B-MO**—The recovery factor k of 3 thermometers was tested in flight. Values of k decreased by about 0.2 between 5000 and 40,000 ft but with considerable variation. Appendixes deal with relation between indicated and ambient air temperature $T_a = T_i / \left\{ 1 + \frac{k}{288} \cdot \frac{1}{p} \left(\frac{V_i}{86.8} \right) \right\}$ and with accuracy requirements ($\pm \frac{1}{2} - 1^\circ\text{C}$). The report is well illustrated with tables, graphs and photos. *Subject Headings: 1. Airplane thermometers 2. Thermometer lag.*—C.E.P.B.

7.1-155

551.508.26(02)

*Nikitin, V. A., **Izmerenie temperatur v protsessakh nefteobrabotki.** [Temperature measurement during the processing of petroleum.] Moscow, Gostoptekhizdat., 1954. 245 p. 28 figs., 26 tables, foot-refs., 11 refs., eqs. **DLC**—A thorough and highly technical treatment of thermometry, temperature measurement theory, scales, accuracy, calibration and of special kinds of thermometers used in industry; manometric, thermoelectric, electrical, optical and radiational thermometers and, finally, sources of error in measurements which arise from improper installation or dynamic effects in the equipment, of interest mainly through analogy. *Subject Headings: 1. Thermometry 2. Industrial thermometers 3. Textbooks.*—M.R.

7.1-156

551.508.26:551.525.4

Portman, Donald J., **The measurement of temperature and heat transfer in the soil.** Johns Hopkins Univ. *Laboratory of Climatology, Publications in Climatology*, 7(2):293-294, 1954. fig. **MH-BH**—The installation of soil thermometers, made as copper constantan thermojunctions, is described. In addition, a Gier and Dunkle heat flow plate now used to measure the heat transfer in the soil directly is described. *Subject Headings: 1. Soil temperature measurement techniques 2. Soil heat flux 3. Soil thermometers.*—A.A.

7.1-157

551.508.26:551.525.4

Rider, N. E., **A note on an instrument for the continuous recording of soil temperatures.** Great Britain. *Meteorological Research Committee, M.R.P.* 883, Oct. 27, 1954. 3 p. 3 figs., 1 refs. Mimeo. **DWB**—The instrument consists of a Tufnol tube in which thermocouples are inserted at depths of 1, 5, 10, 20 and 40 cm and connected to a six-color recording galvanometer. Wiring is shown and a tracing of a record is reproduced. The instrument is simple, requires a minimum of attention and of soil disturbance. *Subject Heading: 1. Soil thermometers.*—C.E.P.B.

7.1-158

551.508.29:551.525.4

*Staley, Raymond C.; Morse, Bonard E.; Buettner, Konrad and Gerhardt, John R., **Final report on the study and measurement of heat flux in the soil.** Texas. Univ. Electrical Engineering Research Laboratory, Contract AF 19(604)-183, Scientific Report, No. 4-02, Sept. 30, 1954. 62 p.+6 append. of unnumbered tables. 28 figs., (incl. photos), 9 tables. **MH-BH**—This report summarizes research activities dealing with the development and operation of an instrument for the direct measurement of heat transfer in the soil. The requirements of small physical size to avoid heat flow interference and of making measurements *in situ* so as to leave the soil undisturbed made it desirable to base such a design on an instrument originally developed by ALBRECHT. The final instrument uses wire wound rod shaped ceramic thermistors instead of Albrecht's wire wound resistance thermometers and, following

a theoretical analysis of the heat transfer from various types of soil-imbedded heated elements derives the *in situ* soil thermal conductivity from the temperature-time response of a single element rather than from a pair of elements. The construction and calibration of the heat flux meter are described. The results of a series of detailed measurements are presented along with a description of certain other measurements made during the Great Plains Turbulence Project at O'Neill, Nebraska. The data taken during this measurement project are given in a series of appendices. An evaluation of the reliability of the surface heat flux and soil thermal conductivity values show that in spite of satisfactory thermal conductivity values there is not at present a satisfactory technique for extrapolating sub-surface heat flux values to the surface. A brief description is also made of a portable hypodermic-type meter designed to measure the thermal conductivity of soil over small sensing volumes. A series of near surface thermal conductivities from 50×10^{-6} to 1400×10^{-6} cgs units. *Subject Headings:* 1. Heat transfer in soil 2. Soil heat flow meters 3. Soil heat conductivity. I. Texas. Univ. Electrical Engineering Research Lab.—*Authors' abstract.*

7.1-159

551.508.29:551.525.4

Swartz, J. H. (*U. S. Geol. Surv., Wash., D. C.*), **A geothermal measuring circuit.** *Science*, 120(3119):573-574, Oct. 8, 1954. fig. **DLC**—Thermistors with accuracy of $\pm 0.01^\circ\text{C}$ are used for measuring temperature gradients in drill holes in oil fields of northern Alaska. The circuit and operational features are described and illustrated. The system is recommended wherever maximum accuracy is desired for multiple point measurements with a minimum number of conductors. *Subject Headings:* 1. Geothermal circuits 2. Thermistors 3. Borehole temperatures.—*M.R.*

7.1-160

551.508.29:537.311

Tillman, J. R., **Semiconductors and transistors: some current problems.** *Nature*, London, 176(4470):9-11, July 2, 1955. **DWB**—Account of the properties of germanium and silicon and problems of transistor technology and physics. *Subject Heading:* 1. Transistors.—*C.E.P.B.*

7.1-161

551.508.29:536.51:612

Woods, Robert W. (*College of Medical Evangelists, Loma Linda, Calif.*), **Thermistor electronic thermometer.** *Science*, 121(3140):337-338, March 4, 1955. 2 figs. **DLC**—The circuit diagram, calibration and special characteristics of a thermistor electronic thermometer, for measuring rapidly and accurately body temperatures of groups of small experimental animals, are presented. The W.E. No. 14B thermometer in a bridge circuit is used. Nineteen thermistor bridges (one for measuring ambient temperatures and six sets of three for the six animals tested) are identical each with a balancing control for setting the minimum temperatures reading and a maximum setting control. *Subject Headings:* 1. Body temperatures 2. Thermistor electronic thermometers.—*I.L.D.*

7.1-162

551.508.77

Raynor, Gilbert S. (*Brookhaven National Lab., Upton, N. Y.*), **The rotary rain indicator, an electrical precipitation time recorder.** *American Meteorological Society, Bulletin*, 36(1):27-30, Jan. 1955. 7 figs., 3 refs. **MH-BH**—The design and operation of a rotary rain indicator (developed by the Brookhaven National Laboratory Meteorology Group) recording not only the beginning and ending of each period of precipitation but also giving a rough indication of the rate of rainfall are described. The sensitive element consists of a continuous circular grid (comprising a bakelite cylinder with imbedded strips of copper), the circuit of which may be completed by a drop of water. The apparatus is illustrated with photographs and diagrams and the type of trace is reproduced. *Subject Heading:* 1. Rainfall recorders.—*I.L.D.*

7.1-163

551.508.77

Winter, E. J., **A simple gauge for recording weekly rainfall.** *Weather*, 10(8):272-273, Aug. 1955. fig. **DWB**—A cheap gage consists of a 1 gal paraffin can with screw stopper bored for stem of 6-in. funnel (rim removed), soldered in, prolonged downward by plastic tube. There are $2 \frac{1}{64}$ " air holes. *Subject Heading:* 1. Rain gages.—*C.E.P.B.*

7.1-164

551.508.91:551.594.12

Butterworth, I., **Photometric measurement of ionization in cloud chambers.** *Philosophical Magazine*, 7th Ser., 46(379):884-894, Aug. 1955. 3 figs., table, 9 refs., 3 eqs. **DWB**—Ionization densities of two tracks can be compared by measuring with a microphotometer optical transmission of track images compared with film on either side in the chamber photograph. Apparatus and methods are described; tests with particles of known ionization are satisfactory at ionizations of less than 6 times minimum. Advantages over drop counting are possibility of using a denser gas and lower magnification; disadvantages are slowness and more stringent requirements. *Subject Headings:* 1. Cloud chambers 2. Ionization measurement.—*C.E.P.B.*

7.1-165

551.508.94

Mapleson, W. W. and Whitlock, W. S., **Apparatus for the accurate and continuous measurement of the earth's electric field.** *Journal of Atmospheric and Terrestrial Physics*, 7(1/2): 1-72, Aug. 1955. 3 figs., 41 refs., eqs. **DWB**—Two new instruments of the "field mill" type, for the accurate measurement of the earth's electric field, are described. One mill, designed for operation in fair weather, gives a galvanometer deflection of ± 5 cm for a field of ± 250 V/m with an accuracy of $\pm 2\frac{1}{2}$ V/m with half-hourly calibration. The response time is about one second. The other mill, designed to work in all weathers, has a maximum sensitivity of ± 10 cm deflection for ± 75 V/m with an accuracy of ± 1 V/m with half-hourly calibrations. The response time is about one-tenth second. The theory of their operation is given, including an analysis of the disturbing effects of rain and air-earth currents, and of ground current in the first valve of the amplifier. The limitations to their accuracy are discussed and improvements in design are suggested. A review of earlier field mills and other "mechanical collectors" is included. *Subject Heading:* 1. Atmospheric electricity instruments.—*Authors' abstract.*

SYNOPTIC ANALYSIS AND FORECASTING

See also: **Popular met.** (Dufour), 7.1-13; **Met. instruments & elements** (Alföldy), 7.1-17; **Forest met.** (Villeneuve), 7.1-89; **WMO. marine code** (U.S.W.B.), 7.1-103; **Marine met.** (Rodewald), 7.1-104; **Marine navigation** (Rodewald), 7.1-106; **Marine disasters** (Rodewald), 7.1-112; **Sferics codes** (U.S.W.B.), **Florida citrus & cold weather** (Johnson), 7.1-243; **Upper wind direction & weather** (Miyamae), 7.1-265.

7.1-166

551.509.16

Lumb, F. E., **Science and forecasting.** *Meteorological Magazine*, London, 83(982):121, April 1954. ref. **MH-BH**—Referring to a statement in a review by B. C. V. ODDIE of a lecture by WANSBROUGH-JONES on **The scientist's place in the Services** that the weather forecaster "perhaps needs his own philosophy of science," LUMB considers that forecasters do use scientific methods. ODDIE replies. *Subject Headings:* 1. Weather forecasting philosophy. **Oddie, B. C. V.**—*C.E.P.B.*

7.1-167

551.509:007

McIntyre, D. P. (*Met. Service of Canada, Toronto*), **Roster for shift workers.** *American Meteorological Society, Bulletin*, 35(10):481-483, Dec. 1954. 3 tables, 5 eqs. **MH-BH**—The principles underlying symmetrical rosters are examined mathematically and formulae of value to planners are derived. Methods are discussed for the systematic design of rosters to meet any given set of requirements. Numerous examples are used to illustrate these methods. *Subject Heading:* 1. Forecasting rosters.—*Author's abstract.*

7.1-168

551.509:519.283

Ogawara, M. and Tomatsu, K. (*Met. Res. Inst., Japan*), **A prediction for the next maximum of sunspot numbers.** *Papers in Meteorology and Geophysics*, Tokyo, 5(3/4):213-216, Jan. 1955. fig., table, 3 refs., 9 eqs. **DWB**—The magnitude and the date of the next maximum of WOLF's sunspot numbers are stochastically predicted. Their most probable values are 18.4 and Jan. 1958, respectively, and their uncertainty is indicated individually and jointly

by a sort of probability distribution. *Subject Headings: 1. Sunspot maximum predictions*
2. Statistical forecasts.—Authors' abstract.

7.1-169

551.509.00

Thrane, Peter (*Norwegian Met. Inst.*), **En oversikt over vaervarslingstjenesten.** [A survey of the weather forecasting service.] *Naturen*, Bergen, 78(11):322-335, 1954. 3 figs.
DLC—A popular account is given of the development in weather forecasting during the past ninety years as a result of advances in communications. Maps showing the location of weather stations in Western Europe sending surface weather reports and upper air observations are reproduced. The sending of observations by the use of radio, telephone, telegraph and teletype, the recording of these observations and their use in weather maps to provide forecasts are discussed. *Subject Headings: 1. Forecast services 2. Europe.—I.L.D.*

7.1-170

551.509.33:551.513

§Mildner, Paul, **Ein Weg zu Mittel- und Langfristvorhersagen.** [A method of medium and long-range forecasting.] *Umschau*, 54(23):710-713, Dec. 1, 1954. 7 figs. **DLC**—The daily maps of the circumpolar atmosphere given by radiosondes show at 10-15 km (500 mb) polar and tropical air masses separated by a steep front which may run zonally or meridionally. Intermediate are waves in the polar front, which may be cut off as cold or warm islands. Changes of type are often rhythmic and can be forecast by symmetry points. They give an idea of the probable development of the general weather situation. *Subject Headings: 1. Extended forecasting 2. Atmospheric circulation.—C.E.P.B.*

7.1-171

551.509.33

Stidd, C. K. and Silberman, Isadore, **Extended forecasting by means of multiple correlation of harmonic coefficients.** U. S. Weather Bureau, Feb. 23, 1954. 12 p. table, 4 refs., 16 eqs. **DWB**—Two extended forecast studies are reported: one to forecast Jan. mean sea level pressure for the Northern Hemisphere from that of the preceding Dec. and the other to predict instantaneous 700 mb-contour height at 45°N from height 5 days previously. Multiple correlation method was employed, using surface-spherical harmonics in the first correlation and Fourier series in the second experiment. Data for 1946-53 show some skill in predicting Dec.-Jan. change, but zero skill in predicting anomaly or persistence. Both experiments show little skill except in predicting return to normal. *Subject Headings: 1. Extended forecast studies 2. Multiple correlation techniques 3. Spherical harmonics 4. Northern Hemisphere.—M.R.*

7.1-172

551.509.33:551.583.13

*Takahashi, K. et al., **On the seasonal weather forecasting based on the periodicities.** *Journal of Meteorological Research*, 6(6):147-164, July 1954. 4 figs., 9 tables, 15 refs., 16 eqs. In Japanese; English summary p. 147. **MH-BH**—Experimental seasonal weather forecasts based on the periodicities in weather changes were made since the fall of 1950 and the results were verified. We found that about 70% of the forecasts of 5-day mean temperature anomalies for the future 2½ months came true, while only about 55% of those of surface pressure were right. However, the forecast of the weather sequences based on the prognostic chart drawn by the calculated surface pressures gave good results. Next, hunting for periods of several elements was done for 5-day mean values of pressure, temperature and precipitation. And some fundamental problems in the extrapolation based on periodicities were discussed. *Subject Headings: 1. Seasonal forecasting 2. Periodicities.—Authors' abstract.*

7.1-173

551.509.5:551.576.4

Kinzebach, R. M. (*McChord AFB, Tacoma, Wash.*), **An objective method of forecasting the occurrence of low clouds in the McChord-Seattle Area during the summer months.** *American Meteorological Society, Bulletin*, 36(3):104-108, March 1955. 2 figs., 6 refs. **MH-BH**—This paper presents an objective method of forecasting advective stratus and other low clouds during the summer months in the McChord-Seattle area. A relationship is shown between the 1630P pressure at North Bend, Oregon and Seattle, Washington, and the inland movement of stratus and the occurrence of other low clouds. Higher 1630P pressure at North Bend,

beginning at a critical positive difference, favors the occurrence of low clouds the following day; higher 1630P pressure at Seattle, at a critical negative difference, favors clear skies or fog formation, with higher values reaching 100% verification. *Subject Headings:* 1. Objective forecasting 2. Cloud height 3. Cloud forecasting 4. North Bend, Oregon 5. Seattle, Wash.—*Author's abstract.*

7.1-174

551.509.5:551.515.4

Lindquist, H. D. (*U. S. W. B. Airport Station, Seattle-Tacoma Airport*), **Objective aid to forecasting lightning storms in the Colville District.** [Seattle, U. S. Weather Bureau], Feb. 1954. 8 p. 4 charts, 8 refs. Mimeo. DWB—This is a very objective report on the use of an objective method of forecasting thunder or lightning in the N.E. part of the State of Washington in the summer months. July and Aug. data for 1949-53 were used as the "original" data, and that for 1946-48 as the independent test data. The Showalter Stability Index for Ellensburg at 0300Z is used as one parameter, and 0300Z 850 mb lifting condensation pressure as the second parameter, and the number of stations reporting lightning storms in the Colville Forest District plotted on the appropriate coordinates for the day. For some strange reason the original data gave 78% and the test years only 60%. Furthermore, there was a steady improvement from 51% in 1946 to 81% in 1953. "No lightning" forecasts verified better than "lightning." *Subject Headings:* 1. Thunderstorm forecasting 2. Objective forecasting 3. Lightning 4. Thunder 5. Colville Forest, Wash.—*M.R.*

7.1-175

551.509.5

Miller, Albert; Curtis, Robert C. and Weintraub, Charles A., **Investigation into the relationship between 500-mb parameters and synchronous surface weather.** Pennsylvania State University. Mineral Industries Experiment Station, Dept. of Meteorology, Contract AF 19(604)-588, Final Report, June 30, 1954. 103 p. 17 figs., 9 tables, 20 refs., eqs. Mimeo. MH-BH—The relationship between various 500 mb parameters and simultaneous surface weather was studied in order to determine whether 500 mb prognostic charts, derived objectively by numerical methods, could be used in devising objective methods of forecasting surface weather. The study is based upon eight years of upper air and surface data for St. Cloud and Minneapolis, respectively. The eighteen 500-mb predictions selected initially were supplemented with 12- and 24-hr changes and with some measurements utilizing the 700 mb and 850 mb levels. None of the relationships were good enough to make a forecast based upon such relationships significantly better than a "climate" forecast. The predictand that could best be forecast from the upper air parameters was the incidence of precipitation. The predictor, contour gradient, yielded the best result. *Subject Headings:* 1. Objective forecasting methods 2. Prognostic charts.—*From authors' abstract.*

7.1-176

551.509.5:551.515.3 551.513.2:551.515.3

Mook, Conrad R., **A preferred thickness line accompanying multiple tornado occurrences.** *Monthly Weather Review*, 82(6):160-162, June 1954. 5 figs., 9 refs. MH-BH—It is shown that the 18,600 ft contour line appears on the 1000-500 mb charts at the center of tornado areas compiled from composite charts of tornadoes in several sections of the South or Central United States. This existence of preferred thickness patterns is possibly connected with zones of maximum gradient and hence "jet stream" type wind shear structure. *Subject Headings:* 1. Tornado forecasting 2. Thickness patterns 3. Jet stream-tornado relationships.—*M.R.*

7.1-177

551.509.5:551.54:517.51

Reymann, G., **Zur Interpolation des Luftdruckfeldes als Grundlage quantitativer Vorhersage.** [Interpolation of atmospheric pressure field as a basis for quantitative forecasting.] *Berlin. Freie Universität. Institut für Meteorologie und Geophysik, Meteorologische Abhandlungen*, 2(3):209-214, 1954. 2 figs., 3 refs. DWB—The author proposes a procedure for diminishing arbitrariness in pressure forecasting arising in upper atmosphere charts as a result of the sparse distribution of radiosonde ascents and of radiosonde errors. The greatest difficulties are encountered in the region of highest wind velocities; jet stream in the upper troposphere. It is suggested that the usual procedure, in which curves of equal wind velocity,

expressed as functions of geographical latitude and isopotential distance, are taken and ordinates be replaced by one in which latitude and wind velocity are right angle coordinates within which are the curves of isopotential distance. An example of this interpolation procedure is presented. *Subject Headings:* 1. Pressure forecasting 2. Interpolation.—I.L.D.

7.1-178

551.509.53:551.524.36:551.525.

*Vandenplas, A., *Comparaison des températures minima sous abri et des températures minima au voisinage immédiat du sol en vue de la prévision des gelées au sol pendant la période de la récolte des betteraves sucrières.* [Comparison of minimum temperatures in the screen and at the surface of the soil with a view to forecasting surface freezing temperatures during the harvest season of sugar beets.] *Belgium. Institut Royal Météorologique, Miscellannées*, No. 41, 1951. 26 p. 11 tables, fig., 6 refs. DWB—Various working formulas exist for the forecasting of nocturnal minimum temperature several feet above the ground. It is more difficult, however, to forecast minimum temperature on the ground surface, owing to the multiplicity of factors involved. In order to facilitate this task, so important for agriculture, the author presents comparative data (Uccle, 1900-1949) on frequencies of specified minimum temperatures (Oct.-Nov., by decades) at (a) 1.5 m above the ground, (b) 10 cm above grass, (c) directly on the grass and (d) in the surface layer of bare soil (less than 1 cm deep). Some qualitative correlations are derived and their dependence on various weather situations is discussed. *Subject Headings:* 1. Nocturnal minimum temperature forecasting 2. Minimum temperatures 3. Surface minimum temperatures 4. Sugar beets 5. Uccle, Belgium.—G.T.

7.1-179

551.509.8:92

Rodewald, M. and Hofmann, A., *Von der Wetterprophetie. Die sinnlose Blindlingsvorhersage. Wetterpropheten und wie sie scheiterten.* [On weather prophecy. Senseless guessing. Weather prophets and how they failed.] *Wetterlotse*, Hamburg, No. 91:152-163, Aug. 1955. DWB—Brief biographies are given of 4 weather prophets. P. MURPHY (Irish, 1782-1847) gained fame in 1838 by giving Jan. 20 as the coldest day of the winter. J. F. NOWACK (Austrian) from 1866-1905 gave 48-hr forecasts from the behavior of the "weather plant" (*Abrus precatorius*). PH. A. MATHIEU (French, 1808-1865), farmer turned "meteorologist," issued a famous weather almanac based on lunar phases. RUDOLF FALB (German, 1838-1903), the most famous weather prophet of central Europe, worked with "key days" depending on tidal forces. Most weather prophets depend on the moon but spiders, leeches, tree frogs, etc. have not been neglected. Weather prophets have flourished most in England and America. *Subject Headings:* 1. Weather prophets 2. Murphy, P. 3. Nowack, J. F. 4. Mathieu, Ph. A. 5. Falb, R.—C.E.P.B.

STRUCTURE AND PHYSICS OF THE ATMOSPHERE

ATMOSPHERIC POLLUTION

See also: Met. & atomic energy (U. S. W. B.), 7.1-1; Sanitary Engr. Conf. Proceedings, 7.1-5.

7.1-180

551.510.42:546.22

Bushtueva, K. A., *Sootnoshenie kontsentratsii sernistogo gaza i aerozolia sernoj kisloty v atmosfernom vozdukh v zavisimosti ot meteorologicheskikh uslovii.* [The relation between the concentrations of sulfur dioxide and sulfuric acid aerosol in the atmosphere as dependent on meteorological conditions.] *Gigiena i Sanitariia*, Moscow, No. 11:11-13, Nov. 1954. 3 figs., refs. DLC—The author investigated the sulfuric acid aerosol content of the air of Moscow and its relationship to the oxidation of sulfur dioxide. In addition, the relationship between SO_2 and H_2SO_4 aerosols and relative humidity, wind velocity and type of weather was examined. Aerosol contamination increased with rising relative humidity, with low wind velocity and on overcast and foggy days. *Subject Headings:* 1. Atmospheric pollution 2. Sulfur dioxide 3. Sulfuric acid aerosol.—I.L.D.

7.1-181

551.510.42:616.1/2

Foulger, J. H. (*E. I. du Pont de Nemours & Co.*), **Smog and human health.** *Meteorological Monographs*, Boston, 2(8):111-117, Oct. 1954. 2 tables, 9 refs. DWB—The smog accidents of Donora and the Meuse Valley are discussed and the conclusion is reached that the fatalities were caused by the severe stress exerted upon the respiratory and circulatory systems by the properties of smog as a whole and not by any specific toxic substance. The physical and chemical properties of smog are discussed and the nature of the stress which it imposes upon respiration is analyzed. The acute action of smog, and its possible chronic effect are discussed. *Subject Headings:* 1. Smog 2. Public health 3. Respiratory diseases 4. Circulatory system. —I.L.D.

7.1-182

551.510.42:551.508.91

KHukhrina, E. V. and Vorontsova, E. I., **Sravnitel'naia otsenka razlichnykh metodov porovnogo opredeleniia zapylenosti vozdukh.** [Comparative evaluation of different methods of gravimetric determination of atmospheric dusts.] *Gigiena i Sanitariia*, Moscow, No. 11:20-25, Nov. 1954. 3 figs., 2 tables. DLC—The modifications of the gravity method for determining the dust content of the atmosphere by cotton, glass, wool and filterpaper are compared; two new methods of desiccation by means of a vacuum and warm air and devices for sampling air are described. A diagram of the dust chamber within which the tests were carried out and of some of the apparatus is presented. Statistical data on the efficiency of the methods and apparatus are given. *Subject Headings:* 1. Atmospheric pollution measurement 2. Atmospheric pollution instruments.—I.L.D.

UPPER ATMOSPHERE—IONOSPHERE

See also: E-layer ionization & auroral luminosity (Omholt), 7.1-230.

7.1-183

551.510.535:621.396

Brown, S. B. (*Queen's Univ., Kingston, Ont.*) and Petrie, W. (*Defense Res. Telecom. Lab., Radio Phys. Lab.*), **The effect of sunrise on the reflection height of low frequency radio waves.** *Canadian Journal of Physics*, 32(1):90-98, Jan. 1954. fig., 3 tables, 12 refs., 23 eqs. DWB—It has been found that when radio waves of frequency 16 kc/s and somewhat higher are transmitted over distances of 540 km, the phase and amplitude of the received signal change suddenly about one hour before ground sunrise at the mid-point of the transmission path. This effect results from a lowering of the nighttime reflection height of 95 km to the daytime value of 70 km. By considering the geometry of the situation, it is apparent that the process of photo-ionization of atmospheric molecules cannot produce the observed effect since the relevant wave lengths are absorbed before reaching the 95 km height. On the other hand, electrons may be removed from negative oxygen ions by visible and near infrared radiation which does reach the 95 km level prior to sunrise. The problem is then to determine the intensities of the relevant wave lengths at the 95 km level, and to compute the rate at which electrons are released from negative ions. It is shown that the pre-sunrise effect at 95 km is readily explained as a negative ion phenomenon, and the rate of fall of reflection height is discussed. *Subject Headings:* 1. Radio wave reflection 2. Reflecting layer height determination.—*Author's abstract.*

7.1-184

551.510.535:538

Hines, C. O., **Hydromagnetic resonance in ionospheric waves.** *Journal of Atmospheric and Terrestrial Physics*, 7(1/2):14-30, Aug. 1955. 8 refs., 44 eqs. DWB—Hydromagnetic resonance "arises when an initial atmospheric disturbance generates natural modes of electromagnetic oscillation." These are analyzed on the basis that the coupling is weak and the hydrodynamic oscillations are dominant. These are treated as gravity waves in an isothermal atmosphere, the coupling generating natural modes of electromagnetic oscillations which result in enhanced motion of the ionospheric electrons. Comparison with observation of large-scale disturbances "provides estimates for the specific heat ratio ($\gamma \sim 1.1$) and scale height ($C^2/\gamma g \sim 20$ km), which are lower than the values expected for the F2 region concerned but which are nevertheless possible and certainly valid in order of magnitude." *Subject*

Headings: 1. Ionospheric waves 2. Magneto-hydrodynamic waves.—Partly from author's abstract, C.E.P.B.

7.1-185

551.510.535:550.1

Lange-Hesse, Günther, *Erdmagnetische Unruhe und Durchschnittsabweichungen der F2-Schicht-Tagesgrenzfrequenzen in verschiedenen geomagnetischen Breiten*. [Geomagnetic activity and average deviations of daytime F2-layer critical frequencies in different geomagnetic latitudes.] *Journal of Atmospheric and Terrestrial Physics*, 7(1,2):49-60, Aug. 1955. 10 figs., 8 refs. In German; English summary p. 49. DWB—The observational data of six ionospheric stations and one geomagnetic observatory are systematically analyzed in order to find out statistical relations between the degree of geomagnetic activity and the average deviations of the daytime F2 layer critical frequencies from their median values. The observational data are arranged only according to the degree of geomagnetic activity; then the average deviations are determined for different degrees of geomagnetic activity. There appears a distinct dependence on the geomagnetic latitude, the seasons, and the sunspot cycle. The practical significance of these results for the prediction of ionospheric disturbances is discussed. Figures are given representing the reliability of these predictions for different geomagnetic latitudes, different seasons, and phases of sunspot cycle. *Subject Headings: 1. F2 region 2. Geomagnetic activity.—Author's abstract.*

7.1-186

551.510.535:525.6:523.7

Mitra, A. P., *The lunar semi-diurnal oscillation in the ionospheric absorption of 150 kc radio waves*. *Journal of Atmospheric and Terrestrial Physics*, 7(1,2):99-100, Aug. 1955. 2 figs., 3 refs. DWB—Harmonic dials are presented for lunar semidiurnal oscillations in Pennsylvania for day (D region) and night (E region). Day oscillation is only about 0.1 km max 4 hrs after lunar transit. Night oscillation is $0.20(2t' + 80^\circ)$ km. *Subject Headings: 1. Lunar ionospheric tides.—C.E.P.B.*

7.1-187

551.510.535

Saha, A. K. and Ray, S., *Some features of the E2-layer observed at the ionosphere field station, Haringhata, Calcutta*. *Journal of Atmospheric and Terrestrial Physics*, 7(1/2):107-108, Aug. 1955. 3 figs., 2 refs. DWB—The automatic ionospheric recorder normally shows a thick extensive E2-layer in daytime. It usually originates at F1 level at or after 13 h LMT and descends to merge with E1-layer. *Subject Headings: 1. E2-layer 2. Calcutta, India.—C.E.P.B.*

7.1-188

551.510.535

Skinner, N. J. and Wright, R. W., *Recombination and ion production from the total electron content*. *Journal of Atmospheric and Terrestrial Physics*, 7(1/2):105-107, Aug. 1955. 4 figs., 4 refs., eqs. DWB—Revision of a paper in the same Journal, 5:290, 1954. The diurnal variations of mean coefficient of recombination and mean rate of ion production at Ibadan on magnetically quiet and disturbed days are deduced. *Subject Headings: 1. F2 layer 2. Ibadan, Nigeria.—C.E.P.B.*

7.1-189

551.510.535:523.7

Sprenger, K. and Lauter, E. A., *Beobachtungen der tiefen Ionosphäre während des Sonnenfinsternis am 30.6.1954*. [Observations of the low ionosphere during the solar eclipse of 30.6.1954.] *Beiträge zur Geophysik*, Stuttgart, 64(4):284-312, 1955. 17 figs., 14 refs. DWB—At Kühlingsborn on 185-1223 kHz the expected increase of the reflection coefficient of the low ionosphere did not appear until some time after the first contact, and normal values returned considerably before the end of the eclipse. The observed effect (40 db) and retardation of the maximum (4 min) agreed with calculation from a single-layer model of the D region, but the time contraction is only reconcilable with a multiple structure. Observation of the level of disturbance in the long-wave region (8-70 kHz) show first a positive phase due to a decrease of low ionosphere damping, followed by a long negative phase after the maximum obscuration, apparently due to meteorological effects of the eclipse. *Subject Headings: 1. D layer 2. Solar eclipse, June 1954.—C.E.P.B.*

7.1-190

551.510.536:551.593.55:523.59

Fesenkov, V. G., *O gazovom khvoste zemli*. [The gaseous tail of the earth's atmosphere.] *Astronomicheskii Zhurnal*, Moscow, 27(2):89-96, 1950. 2 figs., table, 3 refs. **DLC**. English translation of original in: Hope, E. R., *The earth's exterior atmosphere and counter glow*. 2d ed. Ottawa, Defence Research Board, Defence Scientific Information Service, July 1954. **DLC, DWB**—Observations of night sky luminescence carried out by associates of the Mountain Astrophysical Observatory of Alma Ata have established several new phenomena directly related to the state of the upper atmosphere, namely: the so-called zodiacal twilight, the northern zodiacal light, the distortion of the outer strata of the atmosphere in the plane of the ecliptic and the earth's gaseous tail, which extends in the direction of the sun somewhat outward in the ecliptic plane. After having told how he first noticed in autumn 1948 the strange phenomenon of "false zodiacal light" in the South Balkash Desert which appeared in the form of a faint luminous cone on the western side of the sky and had a shape similar to the bright zodiacal light visible at the same time in the east, rising at the same angle to the horizon. Further the author completes the description of the phenomenon of the false zodiacal light and its counter glow and discusses its nature. On the basis of photometric observations made by DEVARI, ROZHKOVSKIĬ, ASTAPOVICH and KARIMOV, all of the Alma Ata Observatory, and his theories, the author discards the meteoric hypothesis advanced by GYBDEN and MOUTON of the nature of the counter glow and decides that it undoubtedly is gaseous. Finally, he develops the theory and constructs the model of the gaseous tail of the earth in the form of a light truncated cone representing the distortion of the counter glow as being equal on both sides of the meridian, although he realizes that the distortion is greater on the western side of the sky where the counter glow goes over into the false zodiacal light. This is due to the fact that the counter glow is located by some degrees to the west of the point opposite to the sun. The author concludes that the gaseous tail of the earth has a small curvature relative to the radius vector, just as in tails of comets of the first type. (See also 2.4-53, April 1951 and 6.5-8, May 1955, *M.A.B.*) *Subject Headings*: 1. Zodiacal light 2. Zodiacal light theory 3. Zodiacal twilight 4. Gaseous tail of earth's atmosphere.—*A.M.P.*

MECHANICS AND THERMODYNAMICS OF THE ATMOSPHERE

See also: **Descriptive & dynamic met.** (Toscano), 7.1-21; **Mechanism of air warming** (Monin), 7.1-27; **Convective movements in clouds** (Vul'fson), 7.1-278.

7.1-191

551.511

Bessemoulin, J., *Diffuence et divergence*. [Diffuence and divergence.] *I.U.G.G. Association of Meteorology*, Brussels, 1951, *Procès-Verbaux des Séances, Mémoires et discussion*, 1951, 86, pub. Brussels, 1953. **DWB**—Abstract of paper presented at the meeting. The term "diffuence" is proposed for the divergence of the unit vector of a velocity. Meteorological applications were discussed. *Subject Headings*: 1. Diffuence 2. Dynamic meteorology. —*A.A.*

7.1-192

551.511

Chiu, Wan-cheng, *The rate of dissipation of energy and the energy spectrum in a low-speed turbulent jet*. N. Y. Univ. College of Engineering. Research Div., Contract AF 33(122)-261, Scientific Report, No. 2, April 1955. 39 p. 14 figs., 9 tables, 15 refs., 32 eqs. **DWB**—This paper reports a study of the correlation coefficients between eddy velocity components measured at two different points in space, the energy spectrum, and the rate of dissipation of energy in a low-speed turbulent jet. The result of this study shows that the local isotropy proposed by KOLMOGOROV prevails. It also gives the order of magnitude of the mean rate of dissipation of energy. *Subject Headings*: 1. Energy dissipation 2. Correlation coefficients 3. Turbulent jets.—*Author's abstract*.

7.1-193

551.511:532.5

Laikhtman, D. L., *Usloviia vertikal'noi ustoičivosti primeniaiushcheisia s vysotoi porosti vetra*. [Conditions of vertical stability associated with the height of the wind velocity.] (In: Soloveichik, R. E., ed., *Fizika Atmosfery*. Leningrad, Gidrometizdat, 1946.

p. 3-11, 29 eqs.) **DLC**—The author attempts to generalize the results of TAYLOR and GOLDSTEIN on the three-dimensional flow of a compressible fluid and to determine the influence of the vertical gradient of velocity upon the three-dimensional plan of a stratified compressible fluid with the linear changes in its constituent velocities considered. Infinitely small wave disturbances are superimposed upon this laminar flow and the stability of the latter can be determined from the behavior of the former. From the hydrodynamic equation a function τ characteristic for the analysis of vertical atmosphere stability is derived: $\tau = \theta_e - \frac{Rt_{kr}}{\gamma^2 + \delta^2}$, where θ = potential temperature, Rt = Richardson criterion, $\gamma = \frac{du}{dz}$, $\delta = \frac{dv}{dz}$. *Subject Headings*: 1. Stability 2. Hydrodynamics.—*I.L.D.*

7.1-194

551.511:551.52

Lundquist, Charles A. and Horak, Henry G. (*Univ. of Kansas*), **The transfer of radiation by an emitting atmosphere, Pt. 4.** *Astrophysical Journal*, Chicago, 121(1):175-182, Jan. 1955. 2 figs., 2 tables, 2 refs., 39 eqs. **DWB**. Also: Lundquist, Charles A., . . . Pt. 5. *Ibid.* 121(1):183-189, Jan. 1955. 5 refs., 41 eqs. **DWB**—1) The problem of the radiation intensities for a plane-parallel atmosphere containing a distribution of emission sources given by an arbitrary polynomial of the optical depth is solved for isotropic scattering. Both finite and semi-infinite atmospheres are considered. The quadratic case is considered in detail as an example. 2) Finite and semi-infinite plane-parallel atmospheres with source functions for emission sources of the form $\epsilon(\mu) = \mu^n$ and $\epsilon(\tau, \mu) = \mu^n \tau^m$, with m and n being positive integers are considered for isotropic scattering. The emergent intensities are found for the case of the first source function, and a similar method is indicated for the second case. *Subject Headings*: 1. Radiative transfer 2. Emission spectra.—*Authors' abstract.*

7.1-195

551.511 53

U. S. Naval Ordnance Laboratory, **Symposium on Aerothermodynamics, June 30, 1949.** A joint meeting with the Fluid Dynamics Division of the American Physical Society. White Oak, Silver Spring, Md., issued by the Laboratory, July 1, 1950. 104 p. numerous figs., refs., eqs. throughout. Its *NOLR* 1134. **DWB**—Five papers given at this symposium are reproduced in this report. They are: Hirschfelder, Joseph O.; Bird, R. Byron and Spotz, Ellen L., **Properties of gases and gas mixtures**, p. 1-50. Uhlenbeck, G. E., **Transport phenomena in dilute gases**, p. 51-56. Herzfeld, Karl F., **Relaxation effects in shock waves**, p. 57-67. Bogdonoff, Seymour M. and Lees, Lester, **Study of the condensation of the components of air in supersonic wind tunnels, Pt. 1, Absence of condensation and tentative explanation**, p. 69-98. Epstein, Paul S., **Aerothermodynamics of sound waves**, p. 99-104. The first paper gives theoretical information and useful data for calculating coefficients of viscosity, diffusion and thermal conductivity for different molecular gases including those in atmosphere and mixtures. The second article goes into higher pressure transport conditions in gases, the third—into relaxation effects after shock waves in the atmosphere. The final two papers deal with wind tunnel condensation and sound wave thermodynamics, respectively. *Subject Headings*: 1. Gas dynamics 2. Aerothermodynamics 3. Relaxation effects. I. American Physical Society II. Symposium on Aerothermodynamics, June 30, 1949.—*M.R.*

GENERAL CIRCULATION

See also: **Extended forecasting** (Mildner), 7.1-170; **Thickness line accompanying tornado occurrences** (Mook), 7.1-176; **Centers of action** (Rodewald), 7.1-209; **Drought & atmos. circulation** (Kurganskaja), 7.1-292; **About weather** (Mass. Inst. of Techn.), 7.1-325.

7.1-196

551.513.1:518

Eliassen, Erik (*Copenhagen Univ.*), **Numerical solutions of the perturbation equation for linear flow.** *Tellus*, 6(2):183-191, May 1954. 4 figs., 2 tables, 39 eqs., 3 refs. **DLC**—Two dimensional nondivergent perturbations of linear flow are considered. By means of a simple numerical treatment indications concerning the conditions of exponential instability are obtained. Numerical solutions are further used to represent the approximate development of initial perturbations up to a certain time. The correctness of this procedure is shown in

case of the Couette flow. Finally, perturbations of a symmetrical harmonic velocity field are considered in relation to the question about the instability in a barotropic atmosphere. *Subject Heading: 1. Perturbation equations.—Author's abstract.*

7.1-197 551.513.1:551.524.32
Ludlum, David M. (Ed. of *Weatherwise*), **Westerly flow controls the early winter.** *Weatherwise*, 8(1):28-29, Feb. 1955. 4 figs. DWB—The circulation over the United States during the second half of 1954, the Key West deluge and the Ft. Scott snow are described in charts of mean temperature departures given. Normal and total precipitation for Nov. and Dec. are reproduced. *Subject Headings: 1. General circulation 2. Rainfall extremes 3. Snowstorms 4. United States.—I.L.D.*

7.1-198 551.513.1:551.515.1
Haque, S. M. A. (Dept. of Mathematics, Univ. of Dacca, East Pakistan), **Relationship between size and growth-rate of incipient convective disturbances.** (In: UNESCO Symposium on Typhoons, Tokyo, Nov. 9-12, 1954, *Proceedings*, p. 207-211, pub. 1955.) DWB—The growth of perturbations in an annular region of vertically unstable air which is confined between two rigid horizontal planes and which encloses a central core of stable air inside and is enclosed on the outside by stable air is considered. The relationship between the size and growth-rate of such perturbations is established and it is shown that under certain conditions, the perturbations will grow to the size of tropical cyclones. *Subject Headings: 1. Atmospheric disturbances 2. Typhoons 3. Convective activity.—Author's abstract.*

7.1-199 551.513.2:551.557
Ewing, Ann, **Jet stream steers weather.** *Science News Letter*, 66(23):362-364, Dec. 4, 1954. 4 fig. DLC—General discussion of physical properties of jet stream, of its effect on weather development and on aviation, and of jet stream research. The note includes direct statements of H. RIEHL; the airplane survey under Project AROWA, laboratory work of F. FULTZ and analogies between jet and Gulf streams are mentioned. *Subject Headings: 1. Jet stream 2. Jet stream effects 3. Project AROWA. I. Riehl, H. II. Fultz, D.—G.T.*

ATMOSPHERIC DISTURBANCES

See also: **Agricultural met.** (Bantegui), 7.1-80; **Fire whirlwinds** (Graham), 7.1-83; **Thunderstorm flying** (Johnson), 7.1-92; **Thunderstorm effects** (Hay, Hartz), 7.1-126; **Sferics waveforms** (Horner, Clarke), 7.1-128; **Thunderstorm forecasting** (Lindquist), 7.1-174; **Thickness line accompanying tornado occurrences** (Mook), 7.1-176; **Atmospheric disturbances** (Haque), 7.1-198; **Perturbation equations** (Riis), 7.1-255; **Cyclonic precip.** (Hawkins), 7.1-282.

7.1-200 551.515:550.342
Caloi, Pietro, **Sull'origine di microsismi con particolare riguardo all'alto Adriatico.** [Origin of microseisms, with special reference to the upper Adriatic.] Rome. Istituto Nazionale Geofisica, *Pubblicazioni*, No. 245, 1951. 59 figs., 9 refs. Reprint from: *Annali di Geofisica*, 1951, 4:525-577, 1951. DWB—An elaborate study of the relation of synoptic and local weather conditions in Western Europe and the Adriatic, respectively, to microseismic activity recorded at Trieste, Venice and Catania and Messina as well, in the N-S and E-W plane. Numerous synoptic examples (1931-1950) are cited and charts showing cyclonic location and movements which might give rise to standing waves in the Adriatic of a nature which would set up microseismic activity (under certain conditions of rate of movement of the cyclone center with respect to propagation of seiche) are presented and compared with other records. *Subject Headings: 1. Microseismic storms 2. Synoptic conditions for microseisms 3. Adriatic 4. Venice, Italy 5. Trieste.—M.R.*

7.1-201 551.515.1
Lumb, F. E., **An explanation of the behaviour of the depression of October 4-6, 1952, in terms of thermal-development theory.** *Meteorological Magazine*, London, 84(997):211-213, Nov. 1955. 3 figs., 4 refs. DWB—Depression discussed by C. A. S. LOWNDES (*Meteor. Mag.*

83:40, 1954; see 6.2-145, 1955, *MAB*) is further examined. Thermal steering was weak and depression moved south towards maximum of cyclogenesis with rapid development of vorticity stage. *Subject Heading: 1. Cyclone development. I. Lowndes, C. A. S.—C.E.P.B.*

7.1-202

551.515.1(8)

§Markgraf, Hans, **Das La-Plata-Tief.** [The La Plata depression.] *Annalen der Meteorologie*, 6(7/8):244-250, 1953/54. 3 figs., 4 refs. German and English summaries p. 244. **DWB**—Stormy depressions frequently travel N.E. up the Argentine coast and then eastward. Those of Aug. 13-15 and Oct. 13-16, 1903, are analyzed, including surface charts with fronts and reconstructions of the 500 mb topography. The depressions are due to the juxtaposition of Antarctic and tropical air at very different temperatures. *Subject Headings: 1. Barometric depressions 2. La Plata storms 3. Argentina.—C.E.P.B.*

7.1-203

551.515.1(265)

*Ohmstede, W. D. and Dean, G. A., **Examples of the development and persistence of distal cyclones in the Tropical North Pacific.** California. Univ. at L. A. Institute of Geophysics. Oahu Research Center, Contract AF 19(604)-546, Scientific Report, No. 9, Dec. 1954. 6 p. tables, 3 refs. numerous charts. **DWB**—Daily streamline analyses at 30,000 ft, for the fall of 1952, have been completed for the purpose of studying the development and persistence of distal circulations over the Tropical North Pacific Ocean. Tables are presented to show the persistence of the circulations at 30,000 ft, and track charts are employed to show their displacement. *Subject Headings: 1. High level tropical cyclones 2. Tropical cyclone development 3. General circulation 4. Central North Pacific Ocean.—Author's abstract.*

7.1-204

551.515.1

§Rodewald, M., **Ein Miniatur-Orkan im Grenzgebiet des Golfstroms.** [A miniature hurricane on the borders of the Gulf Stream.] *Wetterlotse*, No. 86:73-81, April 1955. 5 figs. **DLC**—On Jan. 31, 1955, the "Heidelberg" encountered a small depression of hurricane intensity in 42°40'N, 50°48'W. A synoptic chart and section through the storm are given (lowest pressure 991 mb). The complex frontal development is analyzed. *Subject Heading: 1. Extratropical cyclones.—C.E.P.B.*

7.1-205

551.515.1(261)

Rodewald, M., **Schwerer Nordsee-Sturm im Mai.** [Severe North Sea storm in May.] *Wetterlotse*, No. 90:151, July 1955. **DLC**—A note on the storm of May 18-19, 1955, which entered the North Sea via the English Channel. *Subject Heading: 1. Storms at sea 2. North Sea.—C.E.P.B.*

7.1-206

551.515.11(94)

§Hogan, J. (Perth Weather Bureau), **Interesting case of rapid frontogenesis in a trough.** *Australian Meteorological Magazine*, Melbourne, No. 3:5-12, May 1953. 5 charts. **DWB**—A case history of a frontogenesis followed by cyclogenesis in a trough over Western Australia July 16-18, 1952. *Subject Headings: 1. Cyclogenesis case histories 2. Western Australia.—M.R.*

7.1-207

551.515.1

Mertins, O., **Fahrt durch die Spitze eines Warmsektors.** [Through the peak of a warm sector.] *Wetterlotse*, No. 91:163-166, Aug. 1955. 2 figs. **DLC**—On May 9, 1955, a small depression moved from Scotland over the North Sea. The "Meerkatze" traversed the warm sector from NE-SW. The weather is described and illustrated. *Subject Headings: 1. Warm sectors 2. Cyclone structure.—C.E.P.B.*

7.1-208

551.515.13(26)

§Hoyle, H. D., **Speed and direction of motion of simple warm-sector depressions.** *Meteorological Magazine*, London, 84(997):206-211, July 1955. 1 fig., 3 tables, 3 refs. **DWB**—Motions of depressions over N. Atlantic Jan.-June 1951 in 12 hrs are examined. The angular

variations of steering from winds at various levels, 1000-500 mb thermal wind, geostrophic and isallobaric gradient were all small, the thermal wind being the best indicator (correlation 0.92, ratio speed of depression/thermal wind 0.8). Chart errors exceeded errors of thermal steering. *Subject Headings: 1. Cyclone movement 2. North Atlantic.—C.E.P.B.*

7.1-209 551.515.13:551.513.3(261)
Rodewald, M., **Ein verschobenes Aktionszentrum und seine Folgen.** [A displaced action center and its consequences.] *Wetterlotse*, No. 83:38-40, Feb. 1955. fig. DLC—In the years depressions with a southward track have been frequent in E. Atlantic. Tracks of No. 11-20, 1955, are shown, steered round an intense high between Iceland and S. Greenland, with very low pressure over Azores. Abnormally high temperatures were recorded on Greenland coasts. *Subject Headings: 1. Centers of action 2. Cyclone tracks 3. North Atlantic.—C.E.P.B.*

7.1-210 551.515.13
Rodewald, M., **Wie rasch wandern die Tiefdruckgebiete?** [How fast do low pressure areas move?] *Wetterlotse*, No. 81:278-279, Dec. 1954. DLC—Mean speeds are quoted in different parts of N. Hemisphere from N. America (25 kn) to W. Europe (15 kt) to Japan (1 kt), and seasonal variations. *Subject Heading: 1. Cyclone speeds.—C.E.P.B.*

7.1-211 551.515.13(261)
Rodewald, M., **Ein Teiltief schwenkt.** [A secondary depression weaves about.] *Wetterlotse*, No. 89:120-128, July 1955. 12 figs. DLC—The various movements of a trough or boundary about its primary are shown diagrammatically, from "weaving about" to "wandering." Forecasting rules are given and are illustrated by the secondaries of 26-27 April and April-1 May 1955 in the N. Atlantic. *Subject Headings: 1. Secondary depressions 2. North Atlantic.—C.E.P.B.*

7.1-212 551.515.13
Venkataraman, K. S., **Vertical motion in the northern sector of two cyclones.** *Indian Journal of Meteorology and Geophysics*, 5(2):164-168, April 1954. 5 figs., 4 refs. MH-BH—An attempt is made to deduce "from radiosonde ascents the vertical motion in the northern sector of two fully developed cyclones, one in the Arabian Sea and the other in the Sea of Bengal." Both the tracks of the storms and the radiosonde ascents are illustrated and the temperature lapse rates are analyzed. *Subject Heading: 1. Cyclone movement.—I.L.D.*

7.1-213 551.515.2:551.556.1:621.39
The Northeast withstands successive batterings. *Bell Telephone Magazine*, N. Y., (3):139-153, Autumn 1954. tables, photos. DWB—Statistics and photographs of damage to telephone systems and activities at restoration of facilities in New England during Aug.-Sept. 1954, the worst year on record for wind damage to telephone lines, are presented. Over 20,000 phones were knocked out in the Aug. 31 and Sept. 11 hurricanes alone. Most lines were restored within a week. *Subject Headings: 1. Hurricane damage to telephone systems 2. New England hurricanes (1954) 3. New England.—M.R.*

7.1-214 551.515.2:551.461.23(74)
Redfield, Alfred C. and Miller, A. R., **Memorandum on water levels accompanying Atlantic Coast hurricanes.** Prepared at the request of the U. S. Weather Bureau, June 1, 1955. 14 p. 8 figs., table, 22 refs. DWB—The tidal effects due to the hurricanes of Sept. 1938, Sept. 14-15, 1944, and Carol, Edna and Hazel of Sept. and Oct. 1954 are analyzed along the Atlantic Coast from Hatteras to Maine, to show the relative importance of barometric effects, forerunners, hurricane surge and the resurgence or oscillatory rises and falls that follow the main surge. These are nicely illustrated by tidal records at different points and other data from the storms. In the deep sea the barometric effect is preponderant. Only over shallow coastal or island embayments is the surge appreciable. Therefore local topography must be studied in connection with theoretical or empirical curves applied by analogy. *Subject Headings: 1. Hurricane tides 2. New England hurricanes 3. New England.—M.R.*

7.1-215

551.515.1

Thomson, William E. (*Chic. Univ.*), **Construction of a simple cyclone storm model**. *Journal of Geography*, Menasha, Wisc., 53(5):208-211, May 1954. fig. DWB—The construction of a model depicting a typical cyclonic situation in northern U. S. is described. Spun glass is used to represent air masses. Cardboard is used to show wind direction. The regular weather map is used as a base for constructing the model. Photograph of such a model is given. *Subject Heading: 1. Cyclonic storm models.—I.L.D.*

RADIATION AND TEMPERATURE

RADIATION

See also: Solar radiation measurem. (Jerlov, Schüepp), 7.1-32; *Study of atmos. temp.* (Temple Univ. Res. Inst.), 7.1-153; *Radiative transfer* (Lindquist, Horak), 7.1-194; *Temp. distribution* (Laikhtman), 7.1-236; *Radiative transfer* (Coulson), 7.1-343; *Light polarization* (Coulson), 7.1-344.

7.1-216

551.521:621.1

Singer, S. F. (*Physics Dept., Md. Univ., College Park*), **Astrophysical measurements from an artificial earth satellite**. (In: Boyd, R. L. F.; Seaton, M. J. and Massey, H. S. W. (eds.) *Rocket exploration of the upper atmosphere*. London, Pergamon, 1954. p. 368-370. figs.) DWB—The possibilities are discussed of using an artificial earth satellite for the study of (i) solar ultraviolet and X-rays, (ii) the primary cosmic radiation and (iii) solar corpuscular streams. *Subject Headings: 1. Artificial satellites 2. Solar radiation research.—Author abstract.*

7.1-217

551.521.1:621.4

Mid-Century Conference on Resources for the Future, Wash., D. C. Dec. 2-4, 1954. **The nation looks at its resources. Report of the . . . Conference**. Wash., D. C., Resources for the Future, Nov. 1954. 418 p. Price: \$5.00. p. 138-143, Problems of pollution control. p. 221-225, Development of solar energy and energy resources problems. p. 316-319, The way ahead for research in sea and air resources. DWB—Current and future activities and benefits of weather modification (HEATT), solar energy (TELKES), wind and earth heat and energy utilization of resources from the sea and air (SPILHAUS) were discussed at this Conference on Resources of the Future (next 50 years or so). The discussion of solar energy (p. 221-7) was especially informative. *Subject Headings: 1. Conservation of resources 2. Solar energy utilization.—M.R.*

7.1-218

551.521.11:517.512..

*Depietri, Carlo, **Analisi periodale di 60 anni di misure eliofanometriche**. [Periodic analysis over 60 year period of sunshine measurements.] *Modena, Università. Osservatorio Geofisico, Pubblicazioni*, No. 60, 1954. 7 p. chart, 6 refs. Reprinted from: *Modena. Università. Seminario Matematico e Fisico, Atti*, v. 7, 1952/1953. DWB—Periodogram analysis similar to that for Trieste made by POLLI (1939) based on Campbell-Stokes records at Modena Observatory for period 1893-1953(?) (60 years) to give waves of 20, 11.25, 7.5, 5.5, 3.9, 3 and 2.3 years. Each period and its peculiarities is described and curves reproduced to show variability over 60 years. *Subject Headings: 1. Sunshine periodicities 2. Periodogram analysis 3. Weather cycles.—M.R.*

7.1-219

551.521.11:634.9

Jackson, L. W. R. and Harper, Rex S. (*School of Forestry, Univ. of Ga., Athens*), **Relation of light intensity to basal area of shortleaf pine stands in Georgia**. *Ecology*, Durham, N. C. 36(1):158-159, Jan. 1955. DLC—A strong correlation was found between average percentage of full sunlight and basal area of shortleaf pine stands. An analysis of the curve showing the relationship indicates that from 100 to 40 sq ft the total increase in light intensity was 41%.

compared with 9% from 160 to 100 sq ft. *Subject Headings: 1. Sunlight effects 2. Forestry. I.L.D.*

7.1-220

551.521.3

Coester, F.; Hamermesh, Morton and Tanaka, Katsumi (*Argonne National Lab., Lemont, Ill.*), **Limiting processes in the formal theory of scattering.** *Physical Review*, 96(4):1142-1143, Nov. 15, 1954. 12 refs., 19 eqs. DWB—The equivalence of different formal limiting processes employed in the theory of scattering is discussed by comparing the integral equations which hold for finite values of the parameter. *Subject Heading: 1. Scattering theory.—Authors' abstract.*

7.1-221

551.521.3:535.33

*†Kallmann, H. K., **Tentative absorption and emission spectra of the atmosphere.** California. Univ. Institute of Geophysics, Contract AF 19(604)-111, Scientific Report, No. 2, June 30, 1954. 29 p. almost entirely tables, 52 refs. DWB—Tables of upper atmosphere absorption and emission spectra have been prepared. The absorption spectrum covers a wavelength range from 24 microns to about 300 Å. The emission spectra start at 2.8 μ and end at 3100 Å. The spectra are arranged in decreasing order of wavelengths. The presentation of these tables is based on an extensive literature survey made on the subject; 52 references are given. It should be pointed out, however, that the identification of the element absorbing or emitting a certain wavelength in several cases is doubtful and might be open to discussion. Whenever possible, approximate heights, where these absorption or emission in the atmosphere may occur, are indicated. Here again, these heights are only tentative. Nevertheless, it is hoped that these tables may be useful to workers in various fields of upper atmospheric research. *Subject Headings: 1. Upper atmosphere research 2. Atmospheric absorption 3. Emission spectra.—Author's abstract.*

7.1-222

551.521.3

Shimazu, Mitsuyoshi (*Industrial Res. Inst. Kanagawa Prefecture*), **On the emission intensities of the O₂ atmospheric bands ($b'\Sigma_g^+ \rightarrow X^3\Sigma_g^+$).** Tokyo. Univ. of Education. Institute for Optical Research, *Science of Light*, 3(2):129-142, March 1955. 6 figs., 17 refs. DWB—The relative intensities of the (0-0) and (1-1) bands of the atmospheric oxygen bands obtained in electric discharge were measured, and the procedure of measurement is described. Vibrational and rotational temperatures were measured, and showed good agreement. Assuming the thermal distribution of the excited molecules, the relative intensities of many bands belonging to this system were calculated for the temperature range of 400°~5000°K. Results of several experiments on the emission of the atmospheric bands reported up to the present time are discussed on the basis of the present results. *Subject Headings: 1. Emission spectra 2. Atmospheric absorption bands.—Author's abstract.*

7.1-223

551.521.3:518.12

Swan, P. (*Physics Dept., Melbourne Univ., Australia*), **Solution of many-body scattering problems by Fredholm's equation.** *Physical Review*, 96(4):1144, Nov. 15, 1954. 6 refs., 19 eqs. DWB—A reduction is made of the second-order linear integro-differential equation describing many-body elastic collisions to a Fredholm equation, for which an analytic solution can be constructed. The Fredholm equation is easier to solve numerically, an example being solved by iteration as an illustration of its use. *Subject Headings: 1. Mathematical aids 2. Scattering coefficient.—Author's abstract.*

7.1-224

551.521.3:551.521.63

Weissler, G. L. and Ehler, A. W., **Absorption of radiation in the vacuum ultraviolet by a discharge plasma in nitrogen.** Los Angeles, Calif. Univ. of Southern California, Contract AF 19(604)-151, Technical Report, No. 3, June 1954. 14 p. 3 figs., eqs. MH-BH—Absorption of electromagnetic radiation in the vacuum ultraviolet region of the spectrum by a Phillips Ionization Gauge (PIG) type discharge plasma in N₂ was investigated. Light from a spark discharge source followed a path through the PIG plasma and was analyzed by means

of a vacuum spectrograph. Two photographic plate exposures were made of the source emission spectrum: one with the PIG discharge "on" and the other with the discharge "off". With the densitometer traces of these two exposures the composite absorption cross section of the PIG plasma was determined between 800Å and 400Å, and found to be about 17×10^{-18} cm². Then the absorption cross sections and relative concentrations of the various plasma constituents were considered in the light of available information in the literature. Evidence was presented which indicates that the significant absorbing component in these measurements was atomic nitrogen. The absorption cross section of atomic nitrogen as found by this analysis agreed well within the error limit of this experiment with the theoretical values calculated by BATES. *Subject Headings: 1. Atmospheric absorption 2. Ultraviolet radiation 3. Spectrographs.—Authors' abstract.*

7.1-225

551.521.31:523.7

Denver. Univ. Dept. of Physics, **Daylight luminescence and infrared absorption** Contract W19-122ac-16, Progress Report, No. 1 (i.e., Report, No. 15), Nov. 1, 1951 to Jan. 31, 1952; Progress Report, No. 2 (i.e., Report, No. 16), Feb. 1, 1952 to April 30, 1952. 2 pieces. 16+16 p. 3+4 plates. DWB—Work reported consists of designing parts, assembling and testing two special grating spectrographs for use in total solar eclipse of Feb. 25, 1952 in Saudi Arabia, and to determine spectral distribution of skylight at high elevations by means of balloons and rockets. The quantitative determination of water vapor content of atmosphere from spectrograph data in bands from 1 to 2μ was also investigated. Operations in B-2 at 30,000 ft over Saudi Arabia are described. Icing of quartz windows in plane for 6 min during totality resulted in loss of some record. Fire in observatory also resulted in loss of equipment. Infrared records were not obtained during eclipse due to lack of film. A balloon flight test for standardizing equipment was undertaken. *Subject Headings: 1. Solar eclipse Feb. 1952 2. Spectrographs 3. Sky light spectroscopy studies 4. Saudi Arabia. I. Byron E. Cohn.—M.R.*

7.1-226

551.521.32:551.57

Kawabata, Y. (*Centr. Met. Obs., Tokyo*), **On the intensity of nocturnal radiation in various parts of Asia.** *Geophysical Magazine*, Tokyo, 24(4):223-229, March 1953. 5 figs. MH-BL—Monthly values of nocturnal radiation intensity are graphically represented as functions of cloud height (cloud heights 1, 2, 3, 4, 6 and 8 km) for 105 locations throughout Asia. *Subject Headings: 1. Nocturnal radiation 2. Cloud effects 3. Asia.—G.T.*

7.1-227

551.521.31

*U. S. Corps of Engineers, **Radiation in forest at Willamette Basin Snow Laboratory** U. S. Corps of Engineers, *Snow Investigations Research Note*, (unnumbered), June 1, 1953. 17 p. 7 plates, 5 tables, 12 refs. DWB—Under clear, warm, and calm weather conditions observations were made at WBSL during 8-15 July 1952 to determine the effect of forest cover (ranging from 0.4 to 0.95) upon radiant heat exchange for use in snow hydrology research. For four snow patches (1000-2000 sq ft in size) over which measurements were made, the results indicated that the longwave radiation exchange was toward the snow, having an over-all average value of 0.11 ly/min for an average forest temperature of about 70°F. For bare-ground conditions, the longwave exchange was closer to zero. Inasmuch as the estimated value of longwave radiation exchange for snow in the open was 0.00 ly/min, the heat gain by the snow in the forest was primarily due to longwave radiation received from the trees. A linear relation appeared to exist between hemispherical forest cover and net longwave radiation and, on this basis, a formula for estimating net longwave radiation as a function of forest cover and temperature was derived. Relationships between forest and cover and shortwave radiation could be estimated only roughly because attempts to determine ecliptic cover were unsuccessful. An average of results for six observational sites in the forest (four snow patches and two bare areas) indicated that about 15% of the incident shortwave radiation was transmitted through the trees; of this 15%, about two-thirds was direct sunlight and one-third diffused. Secondary effects of forest upon temperature, convective heat transfer, and snow patch persistence were briefly considered. *Subject Headings: 1. Radiative exchange 2. Forest influences 3. Forest radiation interception 4. Albedo of snow.—Author's abstract.*

7.1-228

551.521.4:535.33

Jones, A. Vallance, **Infra-red spectrum of the night sky near 10,000 Å.** *Nature*, London, 175(4465):950-951, May 28, 1955. fig., table, 7 refs. DWB—The wave lengths of the special features of the spectrum from 9300 to 11,000 Å, obtained at Saskatoon with improved Kodak (2) plates, are tabulated. They are nearly all due to OH rotation-vibration bands. *Subject Headings: 1. Night sky spectrum.—C.E.P.B.*

7.1-229

551.521.4:535.33:546.17

Nicholls, R. W. (Univ. of Western Ontario, London), **The kinetics of excitation of molecular nitrogen and other molecules.** *U. S. Air Force, Cambridge Research Center, Geophysical Research Paper*, No. 30:291-319, July 1954. 10 figs., 3 tables, 27 refs., 47 eqs. Discussion 311-318. MH-BH—The method of excitation kinetics is outlined. In this, the population and depopulation rates of molecular energy levels in a small region of a spectroscopic source are examined and equations are set up relating the existing populations of energy levels to these rates. The intensity of radiation from any of these levels is governed by the excitation conditions by being proportional to the population in the upper state, and to the molecular radiation constants by being proportional to the product of transition probability and energy separation between initial and final levels. Using the population equations appropriate to an assumed excitation mechanism, the intensity of a line or band is expressed in terms of excitation parameters (electron concentration and temperature, molecule concentration, etc.) and molecular constants (transition probabilities, energy level separations). These expressions are useful in an experimental investigation of excitation mechanisms, and the dependence of radiated intensity upon excitation conditions. The method is illustrated from a number of possible excitation mechanisms in N_2 , N_2^+ and NO where steady state conditions are assumed. Accompanying experimental work is briefly described and some speculations are made on some profitable experimental and theoretical extensions of this work. *Subject Headings: 1. Night glow spectrum 2. Nitrogen bands.—Author's abstract.*

7.1-230

551.521.4:551.594.5:551.510.535

Omholt, A., **The auroral E-layer ionization and the auroral luminosity.** *Journal of Atmospheric and Terrestrial Physics*, 7(1/2):73-79, Aug. 1955. 2 figs., table, 10 refs., 10 eqs. WB—The processes causing increase in E layer ionization during magnetic storms and auroras are discussed. It is shown that the recombination coefficient can be derived from simultaneous measurements of the photon emission within the first negative nitrogen band and the maximum electron density in the E region. Equipment and observations are described. The recombination coefficient during auroras is $>10^{-7} \text{cm}^3 \text{sec}^{-1}$. In medium to strong auroras the mean electron density is $2-10 \times 10^5 \text{cm}^{-3}$. V.H.F. radio echoes require localized electron densities about $1.4 \times 10^8 \text{cm}^{-3}$, which though high may not be impossible. The variations of some parameters with height are discussed. *Subject Headings: 1. Auroral luminosity 2. E layer ionization.—C.E.P.B.*

7.1-231

551.521.4:546.17

Sayers, N. D.; Taylor, G. R. and Emeléus, K. G., **Laboratory production of the Vegard-Laplan bands.** *Nature*, London, 175(4449):254, Feb. 5, 1955. fig., 6 refs. DWB—An apparatus is described for studying UV nitrogen bands in electric discharges. *Subject Headings: 1. Night sky spectra 2. Nitrogen bands.—C.E.P.B.*

7.1-232

551.521.64

Sittkus, A., **Untersuchung des Tagesganges der kosmischen Ultrastrahlung mit einer grossen Ionisationskammer.** [Studies on daily variations of cosmic radiation with a large ionization chamber.] *Journal of Atmospheric and Terrestrial Physics*, 7(1/2):80-89, Aug. 1955. 2 figs., table, 6 refs. DWB—Cosmic radiation in a shielded ionization chamber, diameter 10 cm, 180 cm long, was continuously recorded for 40 months in Freiburg, and the departures evaluated hourly. After correcting for meteorological factors a clear diurnal variation with maximum at midday was found. Amplitude was 2-3 per mille on normal days and up to >10 p.m. on 15% of days, which often occurred in sequences with a 27-day recurrence, both

in summer and winter. Only a slight relation was found to magnetic disturbance. *Subject Heading: 1. Diurnal cosmic ray variations.—C.E.P.B.*

TEMPERATURE

See also: **Mechanism of air warming** (Monin), 7.1-27; **Upper air measurem.** (Lina), 7.1-94; **Temp. of Japan** (Japan. Central Met. Obs.), 7.1-134; **Nocturnal temp. forecasting** (Vandenplas), 7.1-178; **Westerly flow controls early winter** (Ludlum), 7.1-197.

7.1-233

551.524:628.1

Ewald, Philip R., **Automatic control of temperature.** (In: Behar, M. F. de M. (ed.) *The handbook of measurement and control.* pub. 1951. p. 123-126. 19 figs., 4 refs.) **DWB**—The main problems of automatic control of temperature, namely: the velocity-distance lag and the capacity lag are discussed. The velocity-distance lag is characterized by a simple delay, and the capacity lag results in an exponential approach to the new value, following a sudden change in control valve position. Methods for improving the automatic control are described. *Subject Headings: 1. Temperature control 2. Heating and ventilating.—A.A.*

7.1-234

551.524:595.1

Haufe, W. O., **Predicting mosquito emergence.** *New Jersey Mosquito Extermination Association, Fortieth Annual Meeting, Atlantic City, N. J., March 4-6, 1953, Proceedings.* p. 52-57. 3 figs., 5 refs. **DLC**—The principles for predicting the peak dates for the emergence of mosquitoes were developed in Northern Canada with *Aedes communis*. On the basis of behavior patterns the net total of temperature influencing development is estimated in contrast to the usual method of recording temperatures in pools. Mathematical equation of the form $d(t-c)=k$ are developed; where d is the duration of the period of development, t is the environmental temperature, c is the lower threshold of development and k a constant. Hyperbolic curves for various species of mosquitoes are shown. The velocity of development of mosquitoes in field pools was found to depend mainly upon: 1) thermal conditions of the environment, 2) nutrition and 3) the net effect of population density and predation by other animals. The thermal conditions of the pools were examined in relation to various meteorological factors. *Subject Headings: 1. Mosquitoes 2. Temperature effects on mosquito breeding.—I.L.D.*

7.1-235

551.524:519.24

Reynolds, G., **Estimating temperature extremes.** *Meteorological Magazine*, London 84(994):123-124, April 1955. table. **DWB**—Comparison of several methods of fitting frequency curves to temperatures at Cambridge, England. The normal frequency curve is adjudged best because easiest. *Subject Headings: 1. Statistical methods in climatology 2. Temperature.—C.E.P.B.*

7.1-236

551.524.2:551.521

Laikhtman, D. L., **Raspredelenie temperatury v prizemnom sloe atmosfery pri zadannom radiatsionnom balanse podstilaiushchei poverkhnosti.** [Temperature distribution in the atmospheric layer near the ground for a given radiation balance of the underlying surface.] (In: Soloveichik, R. E. (ed.), *Fizika atmosfery.* Leningrad, Gidrometizdat, 1946. p. 12-18. 5 refs., 28 eqs.) **DLC**—The determination of distribution of temperature with height for a given radiation balance of the underlying surface is based upon a solution for equation of turbulent diffusion of heat since the coefficient of turbulent diffusion is a function of height. The mathematical derivation of the formula for calculating the temperature distribution at any height is given. *Subject Headings: 1. Temperature distribution 2. Radiation balance 3. Turbulent diffusion of heat.—I.L.D.*

7.1-237

551.524.35:551.311.18

Rodewald, Martin, 1953: **die längste St. Lorenz-Saison.** [1953: the longest St. Lawrence season.] *Wetterlotse*, No. 70:87-89, May 1954. **DWB**—Navigation season extended from April 2 to Dec. 20. Dates are given since 1947. This was due to unusual warmth in Jan.-

arch and Nov.-Dec. *Subject Headings:* 1. Ice cover duration 2. Temperature anomalies
St. Lawrence River.—*C.E.P.B.*

7.1-238

551.524.36

Bruce, W. J., **Night cooling curves for Wahn, Germany.** *Meteorological Magazine*, London, 84(994):105-107, April 1955. 2 figs., 4 refs. DWB—The annual variation of the time of the evening discontinuity is plotted and compared with SAUNDERS'. Evidence is adduced that there is a discontinuous change in spring and autumn. *Subject Headings:* 1. Nocturnal cooling 2. Wahn, Germany.—*C.E.P.B.*

7.1-239

551.524.36

de Percin, Fernand and Falkowski, Sigmund J. (*Environmental Res. Branch*), **Frequency and duration of low temperatures at Fort Churchill, Manitoba, Canada.** *U. S. Quartermaster Corps. Research and Development Command. Environmental Protection Div., Technical Report EP-2*, July 1954. 11 p. 5 figs., 7 tables. DWB—This report presents in detail the frequency and duration of critical low temperatures at Fort Churchill, Manitoba, Canada. The lowest temperature recorded was only -57°F , but temperatures at or below -25°F may be expected 30 to 40% of the time in Jan. and Feb. Temperatures at or below 0°F may be expected 68% of the time in Dec., nearly 94% of the time in Jan., and 90 and 62% of the time in Feb. and March, respectively. Temperatures at or below freezing (32°F) may be anticipated more than 95% of the time from Nov. through March. High winds, combined with low temperatures, cause excessive windchill at Fort Churchill during winter. The average value in Jan. for the seven-year period of record is $1765 \text{ kg-cal/m}^2/\text{hr}$. *Subject Headings:* 1. Extreme temperatures 2. Fort Churchill, Manitoba.—*Authors' abstract.*

7.1-240

551.524.36(436)

*Toperczer, Max, **Extremwerte der Lufttemperatur für Wien, Hohe Warte (1873-1947).** [Temperature extremes, Vienna, Hohe Warte (1874-1947).] *Austria. Zentralanstalt für Meteorologie und Geodynamik, Jahrbuch*. 1952, New Ser., 89:D18-D22, 1953. 4 tables. WB—Mean maximum, mean minimum, highest maximum and lowest minimum temperatures for each day of the year for Hohe Warte Observatory, Vienna, are tabulated for 1873-1947. *Subject Headings:* 1. Extreme temperatures 2. Long period records 3. Vienna, Austria.—*M.R.*

7.1-241

551.524.37:551.575.5

Ashmore, S. E., **Unusual temperatures recorded in fog.** *Meteorological Magazine*, London, 83(979):26-27, Jan. 1954. ref. MH-BH—Referring to letter by E. GOLD (*Met. Mag.*, 82:246, 1953; see 5.1-180, Jan. 1955, MAB) on grass minima higher than screen minima, the same phenomenon at Wrexham is attributed to copious dew. *Subject Headings:* 1. Frost 2. Fog.—*C.E.P.B.*

7.1-242

551.524.37

Delpech, L., **Le froid en Maine-et-Loire.** [Cold periods at Maine-et-Loire.] *La Météorologie*, 4th Ser., No. 35:257-266, July/Sept. 1954. 8 figs., ref. DWB—The author explains the meteorological characteristics of two different winters in Maine-et-Loire Department, which had the most intense cold periods. The study of temperatures, snow distribution and general circumstances are analyzed and a few analogies presented. *Subject Headings:* 1. Severe winters 2. Maine-et-Loire, France.—*Author's abstract.*

7.1-243

551.524.37:551.509.66:634

Johnson, Warren O., **Florida citrus and cold weather: series of 5 articles.** *Florida Grower and Rancher*, Tampa, 61(10):4-5, Oct. 1953; 61(11):50, Nov. 1953; 61(12):15, Dec. 1953; 62(1):10, 36, Jan. 1954; 62(2):14, 18, Feb. 1954. illus. Abstracted from separated sheets. WB—The individual titles are: 1) One-two cold punch of '94-95. 2) Cold air flows like water. 3) Oil-wood-coke for grove heating? 4) Grove thermometers tell the story for citrus growers. 5) Grove heating costs vary with the equipment. *Subject Headings:* 1. Frost prevention 2. Orchard heating.

7.1-244

551.524.3F

Johnson, Warren O. (*U. S. W. B., Lakeland, Fla.*), **Florida freezes.** *Weatherwise*, 7(1): 7-10, Feb. 1954. 4 figs. **DWB**—A survey of fruit and vegetable growing in Florida and the hazards that result from the occasional freezes such as occurred in 1894-95, 1899, 1917, 1934-35, 1940 and other years. In Feb. 1899 it was -2°F at Tallahassee. The frost warning service was started in 1935. Graph shows % of seasons in past 6 yrs when freezing temperatures occurred between Sept. and March at 7 widely dispersed locations in Florida. Vegetable growers usually re-plant immediately after a freeze; some even plant on a freeze forecast so as to get the "jump" on the weather. *Subject Headings:* 1. Frost warning services 2. Cold waves 3. Frost probability 4. Florida.—*M.R.*

SOIL TEMPERATURE

See: Soil mechanics papers (Natl. Res. Council, Canada), 7.1-4; **Mechanism of air warming** (Monin), 7.1-27; **Temp. meas. & heat transfer in soil** (Portman), 7.1-156; **Soil thermometers** (Rider), 7.1-157; **Soil heat flow meters** (Staley et al.), 7.1-158; **Geothermal measuring circuit** (Swartz), 7.1-159; **Nocturnal min. temp. forecasting** (Vandenplas), 7.1-178.

WATER TEMPERATURE

See also: Sea surface temps. (Sandström), 7.1-114; **Freezing of sea water** (Nelson et al.), 7.1-117.

7.1-245

551.526:633.1

Tanaka, Minoru, **Problems on the cold water in paddy fields in the eyes of the rice cultivation.** *Journal of Agricultural Meteorology*, 9(1):27-30, Dec. 1953. fig., 2 tables; **MH-BH**—In the region of cold climate, the yields of rice-crops are reduced considerably by the cool temperature of water. Some practical methods to increase the water temperature in paddy fields used in Japan are reviewed. *Subject Headings:* 1. Water temperature effects 2. Rice yield.—*H. Arakawa.*

PRESSURE AND WIND

PRESSURE

See also: Pressure forecasting (Reymann), 7.1-177.

7.1-246

551.54:523.43

Vorob'ev, A. G., **Novye dannye o davlenii atmosfery na Marse.** [New information on atmospheric pressure on Mars.] *Priroda*, Moscow, No. 6:84-85, June 1953. 2 refs. **DLC**—With reference to newest information contained in the latest articles by A. DOLLFUS, DE VAUCOULEURS and KUIPER treating the question of the intensity of atmospheric pressure on the planet Mars, the author discusses the correctness of their determinations, compares them with results obtained earlier and comes to the conclusion that the most trustworthy value of its intensity must be between 85 and 95 mb with a fluctuation of about 9 mb at different points of its surface. Taking into consideration that the weight of bodies is three times lighter on Mars than on the earth the author claims that airplane flights there from the earth are perfectly feasible. *Subject Headings:* 1. Planetary pressure 2. Mars.—*A.M.P.*

7.1-247

551.543.3:532.59

California. Univ. at L. A. Dept. of Meteorology, **Upper level winds project.** Contract W-28-099-ac-403, Final Report, Jan. 1953. 61 p. figs., refs., eqs. **DWB**—The early solutions by LORD RAYLEIGH and LORD KELVIN of barotropic waves in Couette flow systems are re-examined for the purpose of obtaining a more clear understanding of the physical mechanism which governs the development and evolution of these waves. Only the simplest possible Kelvin wave has been discussed. The bulk of the report deals with the behavior of Rayleigh waves in three layer Couette flows with symmetric and skew-symmetric velocity profiles. *Subject Headings:* 1. Barotropic waves 2. Couette flow 3. Rayleigh waves.—*Author's abstract.*

WIND

See: **Wind conditions at Milan** (Santomauro), 7.1-135.

TURBULENCE

See also: **Snow storm** (Shiotani), 7.1-298.

7.1-248

551.551

†Clementson, Gerhardt Christopher, **Investigation of the power spectral density of atmospheric turbulence**. Cambridge, Mass. Instrumentation Laboratory, Massachusetts Institute of Technology, Reprinted March 1952. 94 p. numerous figs., photos and eqs., 8 refs. Thesis (Ph.D.)—Massachusetts Institute of Technology, 1950. Biographical data, 189. **DWB**—The object of this study is to determine the power spectral density of turbulent air for use in design of control equipment and stabilized air-borne platforms for aircraft. The technique is based on the Wiener-Lee theory of a system response to a random forcing function, and is applied to records of 6 flights in 4 types of air movement: 1) unstable air mass, 2) land-sea discontinuities, 3) thunderstorms and 4) mountain terrain. No appreciable difference can be seen in autocorrelation function under the 4 conditions. A correlation computer was designed and constructed to reduce the flight data. Lateral component of turbulent "roll" was also determined for 1 flight and found to differ little from the longitudinal component. *Subject Headings:* 1. **Turbulence effects on airplanes** 2. **Turbulence spectrum** 3. **Correlation function.**—*M.R.*

7.1-249

551.551:551.557:629.13

Corby, G. A., **Atmospheric turbulence in aviation**. Great Britain. Meteorological Research Committee, *M.R.P.* 919, May 31, 1955. 4 p. Mimeo. **DWB**—The problem of forecasting turbulence at high levels is discussed. Turbulence is important in planning operations, flight forecasting and design of aircraft, but little research is being done. Proposals include full reports by civil pilots and research with accelerometers and hot-wire anemometers. *Subject Headings:* 1. **Free air turbulence.**—*C.E.P.B.*

7.1-250

551.551

Dubreil-Jacotin, Marie-Louise, **Propriétés algébriques des transformations de Reynolds**. [Algebraic properties of Reynolds transformation.] *Académie des Sciences, Paris, Comptes Rendus*, 236(11):1136-1138, March 16, and 236(20):1950-1951, May 18, 1953. refs. **DWB**—These two papers give: 1) the results of the author's attempt to generalize and to refine the definitions of properties of means in turbulent flow suggested by KAMPÉ DE FÉRIET (1949) and 2) the characteristics of a nonregular transformation of Reynolds T. *Subject Headings:* 1. **Turbulence theory** 2. **Reynolds transformation**. I. KAMPÉ DE FÉRIET, J.—*M.R.*

7.1-251

551.551:533.6

†Fage, A., **Fluid motion**. *Physical Society of London, Reports on Progress in Physics*, 1936-41, 1936, pub. 1937, reprinted 1952. 64 refs., eqs. **DLC**—A literature review, discussing flow near a surface and surface roughness, the theory of laminar boundary layer, the stability of laminar motion, wind tunnel turbulence, theories of turbulence and statistical measurements of turbulence. *Subject Headings:* 1. **Turbulence theory** 2. **Boundary layer theory** 3. **Turbulence statistics.**—*A.A.*

7.1-252

551.551:513.56

Kampé de Fériet, J., **Sur l'analyse spectrale d'une fonction stationnaire en moyenne**. [On the spectral analysis of a function with a stationary mean value.] France. Ministère de l'Air, *Publications Scientifiques et Techniques*, No. 251:317-335, 1951. 14 refs., numerous eqs. **DWB**—The difference of approach of the mathematician and the physicist in formulating turbulence problems is apparently very great, but is shown to be not so serious as one might think. The author goes extensively into the theories of the spectrum of turbulence to show

how the differences can be resolved. For the mathematician the turbulence spectrum is composed of discrete or pure rays going from $T = -\infty$ to $T = +\infty$, where the physicist considers the turbulence as a continuous spectrum of measurements of finite time interval. The former would yield negligible energy and a coefficient of correlation of zero. *Subject Headings:* 1. Turbulence spectrum 2. Statistical theory of turbulence.—*M.R.*

7.1-253

551.551

†Ross, Donald, **New approach to turbulent boundary layer problems.** *American Society of Civil Engineers, New York, Proceedings*, v. 81, Separate No. 604, Jan. 1955. 24 p. 12 figs. 21 refs., 21 eqs. **DWB**—A new approach is taken to the problem of incompressible turbulent boundary layers. From physical considerations involving the diffusion of turbulent stresses the boundary layer is divided into three regions distinguished by the relative proximity of the wall. The inner region includes the laminar sublayer, the buffer zone and that part of the turbulent region characterized by logarithmic velocity profile. The outer region of the turbulent layer is similar to that of a wake or jet. The region between the inner and outer parts is a blending region more complicated than either of the two and not amenable to simple analysis. This new physical analysis, combined with empirical correlations, leads to a new method for calculating two-dimensional turbulent boundary layers that usually only involves algebraic equations and is more versatile than any of the previously published methods. *Subject Headings:* 1. Turbulent boundary layer 2. Turbulence calculations.—*From author's abstract.*

7.1-254

551.551:536.2

*Vehrencamp, J. E., **Studies of transfer processes in the lower atmosphere.** *California Univ. at L. A. Dept. of Engineering, Contract N6-onr-275, Task Order 6, Project NR-082-036. (Final Report), Report 54, April 28, 1954.* 53 p. 19 figs. (incl. photos), tables, 22 refs. **DWB**—An experimental investigation of the transfer of momentum at the boundary has been made for air flowing over a level grass surface in the Great Plains region near O'Neill, Nebraska. The drag on the surface exerted by the wind and the variation of mean wind speed with height in the lowest 8 m were measured with an electronic shear-stress meter and 3-cup anemometers at intervals of 2 hrs. An analysis has been made of the effects of comparing mean values of surface stress with mean wind speeds. The analysis indicates that errors of significant magnitude may be introduced in this manner because of the square relation between stress and wind speed. Fluctuations of the wind from the mean are accentuated by the square relation and result in higher stresses than for the same nonvarying mean wind speed. Thus, a more meaningful definition of the mean wind speed would appear to be based on the root-mean-square rather than on the usual simple time mean. A preliminary study of some of the effects of instrument response on the transfer of thermal energy by turbulence was conducted. Although the results cannot be generalized there are indications that the influence of relatively small time lags in the measuring system may be appreciable. *Subject Headings:* 1. Momentum transfer 2. Surface drag measurement 3. Shear stress meters.—*From author's abstract.*

7.1-255

551.551.4:551.515

Riis, Eyvind, **On perturbation of a linear flow with parabolic velocity profile.** *Norske Videnskaps-Akademi i Oslo. Institutt for Vær- og Klimaforskning, Report, No. 2, 1954.* 13 p. 3 refs., numerous eqs. **DWB**—RAYLEIGH has shown that a linear flow with parabolic velocity profile has no exponential instability. In this paper the problem has been treated as an initial problem in order to find the development for an arbitrary initial disturbance. In Sec. 3 we have considered waves with wave-lengths large compared to the height of the layer. The solution has been found for symmetric disturbances. For asymmetric disturbances the solution has been found in implicit form. The motion is shown to be stable. In Sec. 4 the solution for arbitrary k has been found in implicit form only. The ordinary eigen-solution found in Sec. 3, is shown to be invalid. The disturbances have been shown to tend to zero for large values of t for all wave-lengths. *Subject Headings:* 1. Velocity profiles 2. Perturbation equations.—*Author's abstract.*

WIND VARIATIONS

See also: **Marine disasters** (Brown), 7.1-109.

7.1-256

551.553.11

Lamb, H. H., **Malta's sea breezes**. *Weather*, 10(8):256-264, Aug. 1955. 7 figs., 3 tables. DWB—Sea breezes at Malta were investigated in 1953. They occurred at Luqa 58 days between March and Oct. (July 18, Aug. 12) from 5-6 to 19-20 h in July-Aug., 15 h in March, most often from NE (Luqa is in central SE of Malta; prevailing wind m NW). Development is shown by an anemogram and charts of convergence line, which is mounted by a cloud patch. On a typical sea breeze day there are up to four abrupt shifts in wind direction at Luqa. *Subject Headings*: 1. Sea breezes 2. Malta.—C.E.P.B.

7.1-257

551.555.4:551.311.2

King, C. A. M., **Observations of local winds on Svinafellsjökull, Iceland**. *Weather*, 10(8):265-270, Aug. 1955. figs., table, ref. DWB—The glacier, $4\frac{1}{2}$ miles long between steep rock walls, drains the ice-filled crater of Öraefajökull. On Aug. 3, 1954, up- and down-valley winds were shown by mist: up-valley under an inversion of 100 ft, as the sandur began to warm up after sunrise, 0700-0707 G.M.T. Down-glacier (glacier wind) at surface 0728-0840. Up-glacier 0818-0828. Down-glacier 0847 onwards. These winds are explained by heating over the sandur and cooling over the ice. *Subject Headings*: 1. Glacier winds 2. Iceland.—C.E.P.B.

WIND EFFECTS

See also: **Man & winds** (de la Rue), 7.1-6; **Marine disasters** (Rodewald), 7.1-110; **Hurricane damage to tel. systems**, 7.1-213.

7.1-258

551.556:551.465

Hutchinson, G. Evelyn, [Note in] **Marginalia**. *The American Scientist*, New Haven, Conn., (4):661-666, Oct. 1954. fig., 9 refs. DLC—The author discusses the phenomena of the seiche. The action of winds upon water surfaces to produce wind-drifts, the origin and period of surface seiches, the formation of internal seiches and the theoretical models of internal seiches are considered. *Subject Headings*: 1. Wind effects on water surfaces 2. Seiches.—C.E.P.B.

7.1-259

551.556:532.593

Schooley, Allen H. (U. S. Naval Res. Lab., Wash., D. C.), **Curvature distributions of wind-generated water waves**. *American Geophysical Union, Transactions*, 36(2):273-278, April 1955. 8 figs., 4 refs., eq. MH-BH—Measurements made using a small water-wind tunnel, giving a maximum fetch of 26 in., indicate that water waves are not formed until the wind velocity reaches approximately 7 kn. After this threshold there is a sudden build-up of the waves. Between 7 and 20 kn, the mean curvature of the surface c in cm^{-1} is related to the wind velocity v in knots by the expression $c = 0.046v$. The standard deviation σ in cm^{-1} of the curvature is related to the wind velocity by the expression $\sigma = 0.036v - 0.11$. The momental unevenness of the curvature distribution was positive and averaged about 0.8 standard deviation unit. *Subject Headings*: 1. Wind effects on water surfaces 2. Wind waves 3. Water-wind tunnels.—Author's abstract.

7.1-260

551.556:595.79

von Frisch, K. and Lindauer, M., **Über die Fluggeschwindigkeit der Bienen und über die Richtungsweisung bei Seitenwind**. [On the flying speed of bees and their direction relative to a side wind.] *Naturwissenschaften*, 42(13):377-385, July 1, 1955. 16 figs., 5 tables, 9 refs. DWB—Observations at Aich showed that in calm bees flew at about 8 m/s. In a side wind they flew at an angle to compensate for the drift. The "dancers" indicate the true direction of a food supply, without reference to the wind. *Subject Headings*: 1. Wind effects 2. Bee flight.—C.E.P.B.

7.1-261

551.556:551.1

Walden, Hans, *Die Wellenhöhe neu angefachter Windsee nach Beobachtungen lantischer Wetterschiffe und des Fischereischutzbootes "Meerkatze."* [The wave height of newly generated wind sea from observations on Atlantic weather ships and the Fish Protection Ship "Meerkatze."] *Annalen der Meteorologie*, 6(9/10):296-304, 1953/1954. 10 figs., 2 tables, 12 refs. German and English summaries p. 296. MH-BH—Conclusions of various authorities on relations between wave height and 1) duration of wind and 2) fetch are compared among themselves and with Atlantic Weather Ship observations. For a wind of 30 kn the latter agree best with BRACELIN's but there are some differences which are plotted. NEUMANN's heights are up to 12 m larger. The apparent periodicity ("pseudoperiod") of Atlantic ships and "Meerkatze" agree with NEUMANN's values except that they are constant instead of decreasing for short wind durations. Finally, NEUMANN's "Co-cumulative power spectrum" (wave energy) diagram is reproduced with some additions from observations. *Subject Headings: 1. Wave heights 2. Wave periods.—C.E.P.B.*

7.1-262

551.556.2:656.1

Lawrence, E. N., *Effects of a wind break on the speed and direction of wind.* *Meteorological Magazine*, London, 84(998):244-251, Aug. 1955. 8 figs., 9 photos, 8 refs., 2 eqs. Also: Gloyne, R. W., *Comments . . . Ibid.*, 84(1002):380, Dec. 1955. And: Reply . . . 380-381. DWB—Permeable windbreaks 50 ft high, 1600 ft long and 10 ft wide were erected to reduce wind across airfield runways at Manby, Lincolnshire. Winds were measured by cup anemometer on tripods (6 ft) and extending ladders (30-55 ft), no-lift balloons and smoke candles. Using equations $u' = kv(z/50)^{1/9}$ for lapse conditions and $kv(z/50)^{1/7}$ for stable conditions plots were made of horizontal and vertical distribution of k behind two forms of windbreak for different angles of incidence. Eddy conditions are also discussed. The effective wind reduction is normally greater for unstable than for stable conditions. Relations to wind tunnel tests are described. *Subject Headings: 1. Windbreak effectiveness 2. Airfield protection 3. Manby, Eng.—C.E.P.B.*

7.1-263

551.556.1

*Van Eimern, Josef; Franken, Ernst and Harries, Heinz, *Ergebnisse von Windschutzuntersuchungen in Hamburg-Garstedt 1952.* [Results of wind shelter research at Hamburg-Garstedt, 1952.] Münster, Westphalia, Landwirtschaftsverlag, GmbH, 1954. 95 p., 4 figs., 13 tables, 13 refs. At head of t-p: Landwirtschaft-Angewandte Wissenschaft. DWB—In order to determine the wind protection value of the hedges which, growing on earth wall of about $\frac{1}{2}$ m, characterize the landscape of Schleswig-Holstein, the authors carried out an extensive study of the various meteorological elements and their interaction, during the period March-Sept. 1952, at the Hamburg Botanical Garden. Wind, evaporation, soil moisture, atmospheric humidity, atmospheric temperature (including minimum temperature at the ground), soil temperature and dew were measured. Also the influence of the hedges upon yield of oats and rye was investigated. Data are given in graphs and tables, and numerous photographs illustrating the experimental area and the experimental set-up are reproduced. *Subject Headings: 1. Wind breaks 2. Shelter belt effects 3. Crop yield.—I.L.D.*

7.1-264

551.556.4:632.1

Haine, Else, *Aphid take-off in controlled wind speeds.* *Nature*, London, 175(4454):474-475, March 12, 1955. 4 refs. DWB—Ability of various species of aphids to take off at different wind speeds was tested in a wind tunnel. Some species took off readily at speeds exceeding 5 mph. *Subject Heading: 1. Aphid flight.—C.E.P.B.*

UPPER AIR WINDS AND VERTICAL MOTION

See also: *Jet stream steers weather* (Ewing), 7.1-99; *Atmos. turbulence in aviation* (Corby), 7.1-249.

7.1-265

551.557.3:551.509.3

Miyamae, Keikichi, *Upper wind direction and weather at the City of Fukui.* *Journal of Meteorological Research*, Tokyo, 6(7):294-295, Sept. 1954. 2 figs., 2 refs. In Japanese

WB—The author made a work-sheet for objective forecasting at Fukui by means of direction and speed of the upper wind flow. *Subject Headings:* 1. Objective forecasting 2. Upper air winds 3. Fukui, Japan.—*H. Arakawa.*

7.1-266

551.557.36 551.587(52)

Ono, Yaichi, *Nihon-Kinkai Koku Kisho-Zu*. [Aeronautical charts over Japan and neighboring seas.] Tokyo, Hydrographic Department, 1935. 13 plates with text. In Japanese. **DLC**—Contents: Plate 1, List of observation stations. Plates 2-13, Upper air wind roses for more than 50 stations at 500 m, 1000 m, 1500 m, 2000 m and 3000 m level, with set charts for barometric distribution in the Far East at 1000 m, 1600 m, 2000 m and 3000 m level. *Subject Headings:* 1. Upper air wind roses 2. Pressure distribution 3. Aeronautical matology 4. Japan.—*H. Arakawa.*

7.1-267

551.558.21:797.5

Wills, Philip, **Thirty thousand feet high in a sailplane**. *Aeroplane*, London, 88(2285):600-4, May 6, 1955. 8 figs. **DLC**—Account of flight over South Island, New Zealand to 30,400 ft, illustrated by fine cloud photos. Elevation was gained in a series of six lee waves. The flight was ended by cracking of the perspex canopy of the cockpit due to extreme cold. *Subject Headings:* 1. Lee waves 2. Gliding flights 3. South Island, New Zealand.—*C.E.P.B.*

AQUEOUS VAPOR AND HYDROMETEORS

EVAPORATION

See also: Evaporation from pans & lakes (Kohler et al.), 7.1-23.

7.1-268

551.573(26)

Coutagne, Aimé, **L'évaporation des surfaces d'eau naturelles**. [Evaporation from natural water surfaces.] *International Union of Geodesy and Geophysics. Association of Scientific Hydrology, Oslo 1948, Transactions*, 1:105-106, [1950?] **DWB**—General discussion of evaporation and actual evaporation from land and water surfaces. The water balance method is illustrated by two samples. The Lake of Geneva and its surroundings evaporate 900 mm annually in good agreement with the mean regional water loss (550 mm) and with observations from a 4m² tank (650 mm) made over 120 years by French engineers. The Dead Sea evaporates 2500-2800 mm. *Subject Headings:* 1. Evaporation from water surfaces 2. Evaporation from land surfaces 3. Lake of Geneva, Switzerland 4. Dead Sea, Israel.—*A.A.*

7.1-269

551.573

†Harbeck, G. Earl, Jr., **Present status of work on evaporation in the United States**. *U.G.G. Association of Scientific Hydrology, Oslo 1948, Transactions*, 1:98-104, [1950?] 10 tables, 30 refs. **DWB**—Literature review on evaporation from land and water surfaces, covering the period 1936-1947 for the U. S. Some data are given and formulas discussed. *Subject Headings:* 1. Evaporation research 2. Evapotranspiration 3. Literature reviews 4. United States.—*A.A.*

7.1-270

551.573:551.579.5

Ivanov, L. A., Silina, A. A. and Tsel'niker, I. U. L., **O transpiratsii polezashchitnykh i zashchitnykh Derkul'skoi stepi**. [Transpiration of wind shelter plants under conditions of the Derkul' steppe.] *Botanicheskii Zhurnal*, Moscow, 37(2):113-127, 1952. fig., 8 tables, 10 refs. **DLC**—Transpiration rates of different kinds of trees are given for a region of ample moisture supply (near Moscow) and the Derkul' steppe. Temperature, solar radiation and humidity deficit are higher in the steppe, but the transpiration nevertheless lower. Correlation with temperature is high at sufficient moisture supply (up to 0.98) and low or even

negative in the steppe. No relation to wind speed. *Subject Headings:* 1. Transpiration of trees 2. Moscow Region 3. Derkul' Steppe, Kazakhstan.—A.A.

CONDENSATION

7.1-271

551.574.7:629.1

Ice is where you find it. *Flying Safety*, Wash., D. C., 10(10):8-13, Oct. 1954. illus. DWB—At speeds <250 kn, air is sucked rather than rammed into the compression inlet. Adiabatic expansion may thus cool the air at above freezing temperatures to below freezing, when no ice is forming on other plane surfaces. When air is below freezing, ice forms more rapidly at higher speeds. Examples of hazardous ice formation on jet aircraft are cited, among general knowledge of types of ice (clear and rime ice) and of place in plane where ice forms (wing, propeller, pitot tube, antenna, window, carburetor, and jet engine icing). The latter type is rare but when it does occur may cause instant engine failure with little or no warning except rising tailpipe temperatures. Such failure occurs within seconds after ice forms in the engine air inlet screen. *Subject Headings:* 1. Icing of aircraft 2. Icing of jet engines.—M.R.

7.1-272

551.574.7:533.60

In-flight icing conditions studied in blizzard tunnel. *Aero Digest*, Wash., D. C., 70(2):90-91, Feb. 1955. photos. DWB—Brief description and ample illustration of tunnel designed for -40° to 150° F, and wind from 15 to 270 mph. The tunnel cost \$160,000. Nine spray units introduce water into low temperature air; overall dimensions are 76 ft $\times$ 26 ft by 17 ft (height) and it took 2 yrs to design and a year to construct. Lockheed engineers can study ice accumulation and removal on or from aircraft wings. *Subject Headings:* 1. Aircraft icing wind tunnels 2. Low temperature wind tunnels 3. Icing of aircraft 4. Lockheed Aircraft Plant, Los Angeles.—M.R.

7.1-273

551.574.7:629.1

Requarth, William, Icing encounters in a Bonanza. *Air Facts*, N. Y., 18(1):43-48 Jan. 1, 1955. DWB—Case histories of a number of occasions in 1952-3 when the author experienced icing or antenna static in flying through clouds in the Middle West. *Subject Headings:* 1. Icing of aircraft 2. Midwest, United States.—M.R.

7.1-274

551.574.7:629.1

Zamorskii, A. D., Meteorologicheskie usloviia obledeneniia. [Meteorological conditions of icing.] (In: Soloveichik, R. E. (ed.), *Fizika atmosfery*. Leningrad, Gidrometizdat, 1946. p. 52-74. 13 figs., 23 tables, 13 refs.) DLC—Using German air sounding data for 1938 and 1936, the author determined the seasonal probability of icing and the effect of icing upon airplane flights. The following aspects of icing are discussed: classification of airplane icing, icing and the water phase of clouds, effect of number and thickness of clouds upon icing, temperature and icing, relative humidity and icing, icing and relative wind velocity, and icing and synoptic situations. Data are presented in tables and graphs. *Subject Headings:* 1. Icing probability 2. Icing of aircraft 3. Icing.—I.L.D.

FOG

See: Temps. recorded in fog (Ashmore), 7.1-241.

CLOUDS

See also: Cloud forecasting (Kinzebach), 7.1-173; Natural radiation (Kawabata), 7.1-226.

7.1-275

551.576:67

Goodman, Alan, Correlation between cloud shade and shedding in cotton. *Nature* London, 176(4470):39, July 2, 1955. table, 2 refs. DWB—At Tokar, Sudan, number of fruit points shed from some varieties of cotton has a correlation of 0.32-0.73 with cloud amount 2-4 days earlier. *Subject Headings:* 1. Cloud effects 2. Cotton.—C.E.P.B.

7.1-276

551.576

When is a nimbus like a cirrus? When it rains. *Dickey Data*, Kansas City, Mo., (2):6-8, [1954]. photos. DWB—A brief, nicely illustrated article on the various types of clouds and their significance for future weather or in forecasting. *Subject Headings*: 1. Cloud forms 2. Cloud photographs.—M.R.

7.1-277

551.576.1

Mammatocumulus cloud [in] Mediterranean Sea. *Marine Observer*, 25(168):99, April 1955. 3 photos. MH-BH—Photos of well developed grape-like mammato cloud on April 20, 1954 in 35°N 20°E. *Subject Heading*: 1. Mammatus clouds.—C.E.P.B.

7.1-278

551.576.11:551.511

Vulfson, N. I., *Konvektivnye dvizheniia v kuchevykh oblakakh*. [Convective movements in cumulus clouds.] *Akademiia Nauk SSSR, Doklady*, 97(1):77-80, July 1, 1954. 2 figs., 2 tables, ref. DLC—Temperatures were measured within cumulus clouds in a frontal cold air mass by means of electrode thermometers and the results of measurements including size and intensity of air currents, size of clouds, air temperature, etc. are given in tables. It was found that: 1) the cross section of currents within clouds are larger than those outside, 2) the intensity of the currents is considerably greater within than outside clouds, 3) the relative amount of air rising within clouds exceeds that outside them, 4) the size and intensity of currents increases with distance from the cloud base, 5) the convective currents in the cloud constitute a current rising from the lower lying layers and increasing in strength with ascent and 6) developing cumulus clouds actively draw in convective currents from regions underneath the clouds. *Subject Headings*: 1. Convective currents in clouds 2. Cumulus clouds.—I.L.D.

7.1-279

551.576.3:616 551.586

Bittner, Joseph E. (Yakima, Wash.), *Bioclimatology, etiological agents, and prevention of heart disease and cancer*. *Die Naturwissenschaften*, Berlin, 42(1):22-23, Jan. 1, 1955. 1 table, 3 refs. DWB—Geographical and time distributions of cancer and heart disease show a strong association with cloudy days. This observation and medical experimental evidence points to a virus as a common cause for both. This virus can presently best be averted by eating only hot well-cooked food. *Subject Headings*: 1. Medical climatology 2. Cancer and weather 3. Heart disease and weather.—*Author's abstract*.

7.1-280

551.576.4(52)

Hata, Shoji, *Cloud height at Niigata*. *Journal of Meteorological Research*, Tokyo, 6(7):71-73, Sept. 1954. 2 figs., 2 tables, 2 refs. In Japanese; English summary p. 271. DWB—The author investigated the mean height of various kinds of cloud for the months from July 1951 to July 1952, based on daily observation at Niigata. The apparatus used is a 2 metre-range finder. The annual variations of cloud height and frequency of appearance at each height are shown in Tables 1 and 2, respectively. At the normal height of cirrus mean temperature changes within the cloud range from -16°C to -29°C. *Subject Headings*: 1. Cloud height measurement 2. Niigata, Japan.—*Author's abstract*.

PRECIPITATION

See also: Max. precip. data (U. S. W. B.), 7.1-24; Rainfall in Jerusalem (Rosenan), 7.1-125; Rainfall contrast of tropical coasts (Rodewald), 7.1 140; Unit hydrograph (Muhammad), 7.1-304; Pluvial periods (Kubiëna), 7.1-326.

7.1-281

551.577(494)

*Switzerland. Meteorologische Zentralanstalt, *Ergebnisse der täglichen Niederschlagsmessungen auf den meteorologischen und Regenmess-stationen in der Schweiz*, 1953. [Daily precipitation measurement data of the Swiss Meteorological and Rainfall Network, 1953.] Zürich, 1954. 219 p. almost entirely tables. map (fold.). DWB—Detailed monthly

tables of daily precipitation for 127 meteorological and 302 pluviometric stations for Switzerland arranged by drainage areas are presented and compared with long-period averages, along with summarized data and a running account of the weather for the year (especially rainfall). A table of annual precipitation for 1953 expressed as % of normal (1864-1940) gives monthly anomalies for 42 stations. In addition, totalizer values for 1952-53 for 69 stations in the Alps are tabulated. *Subject Headings:* 1. Precipitation yearbooks 2. Annual precipitation summaries 3. Precipitation data 4. Switzerland.—*M.R.*

7.1-282

551.577.1:551.515.12

Hawkins, Harry, F., Jr., **The weather and circulation of July 1953.** *Monthly Weather Review*, 81(7):204-209, July 1953. 6 figs., 4 refs. **MH-BH**—The article presents the results of an investigation of the possible causes of the nonfrontal rainfall which occurred over the Midwest from July 16-18, 1953. The theoretical model of BJERKNES and HOLMBOE "for the vertical distribution of the divergence ahead of and behind a trough as described in this article" is used to explain occurrence of rainfall without frontal or orographic lift. *Subject Headings:* 1. Cyclonic precipitation 2. United States.—*I.L.D.*

7.1-283

551.577.2(794)

*U. S. Corps of Engineers. Snow Investigations, **Determination of annual precipitation Central Sierra Snow Laboratory.** Its *Research Notes*, No. 21, Sept. 22, 1954. 18 p. 5 tables, charts (fold.), 20 refs. **DWB**—The areal distribution and mean depth of annual precipitation over a small (3.96 sq mi), mountainous drainage basin in the Sierra Nevada, where the precipitation is predominantly in the form of snow, is evaluated from a network of 12 precipitation gages and snow courses. Individual gage catches are adjusted for gage-catch deficiencies by comparison with snow-pack water equivalent. Gage-catch deficiencies are related to mean wind speed at the gage site for 5 of the stations. Annual basin precipitation and runoff values form the basis for determining annual losses. Recommendations are made as to gage sites and methods of determining areal precipitation for similar areas having fewer gages. *Subject Headings:* 1. Areal precipitation distribution 2. Snow investigations 3. Precipitation gages 4. Sierra Nevada, California.—*Author's abstract.*

7.1-284

551.577.33(82)

Schwerdtfeger, W., **Más lluvias al fin de la semana. Realidad o ilusión?** [More rain over week-ends: reality or illusion?] *Ciencia e Investigación*, Buenos Aires, 10(3):119-122, March 1954. fig., table, refs. **DLC**—The total number of rainy days over 156 weeks is listed for each day of the week (Buenos Aires, 1948-1952), showing that there is no marked accumulation of rainfall frequency on any day of the week. However, during a 16-week period (Feb.-May 1950) 91% of the total rainfall fell between 8 p.m. Friday and 8 p.m. Monday. Succession of rainy days on the same day of the week frequently occurs in Argentina during periods of a few weeks. This may be attributed to the existence of a 7-day periodicity of rainfall. *Subject Headings:* 1. Rainfall periodicities 2. Buenos Aires, Argentina.—*G.T.*

7.1-285

551.577.35:551.543

Scott, J. R., **24-hr tendencies and weather trends at Singapore.** *Royal Meteorological Society, Quarterly Journal*, 81(349):474-476, July 1955. table, 2 refs. **DWB**—The difference between 4 × mean pressure at Singapore and sum of pressures at 4 surrounding stations was taken out daily and 24-hr tendencies computed. These were compared with day-to-day changes of weather at Singapore. Rising tendency was often followed by improving or dry weather, falling tendency by deterioration. *Subject Headings:* 1. Pressure tendencies 2. Singapore.—*C.E.P.B.*

7.1-286

551.577.37(595)

Bothwell, F., **Heavy rainfall at Changi, Singapore.** *Meteorological Magazine*, London 84(995):156-157, May 1955. **DWB**—During 24 hrs ending 2230 local time on Dec. 9, 1954 12.90 in. fell at Changi. Fall was not exceptionally heavy; maximum in 3 hrs was 3.22 in. Cloud was nimbostratus associated with a surge in NE monsoon, probably converging with

an Ocean westerlies. Total during Dec. was 35.91 in. *Subject Headings:* 1. Excessive fall 2. Changi, Singapore.—*C.E.P.B.*

7.1-287 551.577.37(52)
Hiroshima, Japan. Meteorological Observatory, Study on the heavy rainfall in Chugoku District. Japan. Central Meteorological Observatory, Tokyo, *Memoirs*, 38(3,4):334-342, 1954. numerous figs., 2 tables. In Japanese; legends and summary in English. DWB—There was a heavy rainfall in Kyushu District and the western part of Chugoku and Shikoku Districts at the end of June 1953. This report investigates the local distribution of rainfall in Chugoku District. From this analysis the heavy rainfall seemed to be related to the southward movement of a cold vortex which could be traced by shifting of -35°C isotherm on 300 mb surface. The meridional component of the wind at 300 mb level and the mixing ratio in the lower level is investigated in connection with the heavy rainfall. *Subject Headings:* 1. Excessive rainfall 2. Chugoku District, Japan.—*Author's abstract.*

7.1-288 551.577.37(52)
Ichikawa, H.; Noda, H. and Suzuki, K. On the heavy rainfall in the Tokai District during the 2nd and 3rd decades on July 1953. Japan. Central Meteorological Observatory, Tokyo, *Memoirs*, 38(3,4):393-399, July 1954. In Japanese; legends and summary in English. figs., 2 tables. DWB—Daily precipitation amounts are tabulated for stations in central Japan for the heavy rainfall period July 17-22, 1953. Rainfall distribution charts, surface and 500 mb pressure charts and various upper air temperature values are also presented. *Subject Headings:* 1. Excessive rainfall 2. Rainfall data 3. Tokai District, Japan.—*G.T.*

7.1-289 551.577.37(52)
Kakizaki, E. Analysis of the heavy rainfall in Hokkaido from 31st July to 2nd August 1953. Japan. Central Meteorological Observatory, Tokyo, *Memoirs*, 38(3,4):400-408, July 1954. figs., 4 tables. In Japanese; legends and summary in English. DWB—Rainfall groups are analyzed for rain gauge recording papers. According to the study made by means of surface weather maps and cross sections on the velocity of rainfall groups and on the amount of rainfall caught in by them, it is presumed that this excessive rainfall was caused by the cold air mass which appeared in the upper level. *Subject Headings:* 1. Excessive rainfall 2. Air mass effects 3. Hokkaido, Japan.—*Author's abstract.*

7.1-290 551.577.37(766)
Lott, George A. (U. S. W. B., Wash., D. C.). An extraordinary rainfall centered at Hallett, Ala. *Monthly Weather Review*, 81(1):1-10, Jan. 1953. 25 figs., 2 refs. DWB—Synoptic study of the most intense rain storm considering depth, duration and area, ever observed in Alabama. The usual macroanalysis of the surface weather map revealed no surface low, pronounced pressure fall or surface temperature discontinuity. Study based on surface weather maps, isobars and isotherms of the 500, 750, 3000 and 4000 m levels, temperature-pressure profiles, the low level wind field and 24-hr isallobars. It is concluded that moist conditionally unstable air, a distinct low level temperature gradient, and a strong (usually) easterly low level wind are important factors in the structure of most great rain storms. *Subject Headings:* 1. Excessive rainfall 2. Synoptic studies 3. Hallett, Okla.—*A.L.*

7.1-291 551.577.37:551.579:551.583.3
Wunder, Walter. Pluvialzeiten und Feuchtbodenzeiten. [Pluvial periods and moist soil periods.] *Petermann's Geographische Mitteilungen*, 99(2):87-89, 1955. 17 refs. DLC—Runoff depends on rainfall and evaporation, the latter varying with temperature, and in cold periods runoff or soil moisture may increase even with decreasing rainfall. Pluvial periods are due to displacement of west wind and tropical rain belts, e.g. in astronomical cycle of 21,000 years, and stronger monsoons. Moist soil periods are due to a general lowering of temperature, and do not necessarily coincide with pluvial periods. *Subject Headings:* 1. Pluvial periods 2. Moist soil periods.—*C.E.P.B.*

7.1-292

551.577.38:551.511

Kurganskaia, V. M., **Kharakteristika zasushlivykh periodov s tochki zreniia obshchego tsirkuliatsii atmosfery.** [Characteristic of dry periods from the point of view of general atmospheric circulation.] *Akademiia Nauk SSSR, Izvestiia, Ser. Geogr.*, No. 2:19-28, 1952. 2 figs., 7 refs. **DLC**—In 1946 Dzerdzhevskii showed that a succession of circulation patterns over the Northern Hemisphere—not merely Eurasia and the North Atlantic as believed by Multanovskii—accounted for all large-scale variations of weather. A study of Northern Hemisphere charts for 1899-1948 revealed 13 basic types covering all seasonal and annual types of the general atmospheric circulation. These can be arranged in 4 major groups. Analyses of the general circulation during 8 driest years show the predominance of Arctic air intrusions into temperate latitudes of the continents and meridional anticyclonic cells over Europe, West Siberia and part of North America. This causes a rapid warming up of Arctic air masses over the continents with cloudless weather. Drought years can be classified in 3 groups. A study of the processes in each group can indicate the possibility of drought from the variations during the preceding months. *Subject Headings: 1. Drought 2. Circulation patterns 3. Northern Hemisphere charts.*—*A.M.P., C.E.P.B.*

7.1-293

551.577.61:629.1

Jenkins, D. C., **Erosion of surfaces by liquid drops.** *Nature*, London, 176(4476):303-304, Aug. 13, 1955. 5 figs., ref. **DWB**—Apparatus is described for shooting a flat-nosed projectile at a water drop. The dent in solid aluminium by a 2.5 mm drop at 800 ft/sec is .001 in. deep. Other developments are described. *Subject Headings: 1. Raindrop damage 2. Aircraft damage.*—*C.E.P.B.*

RAIN, SNOW AND HAIL

See also: Snow & ice study (Japanese Soc. of Snow & Ice), 7.1-3; **Snow survey data**, 7.1-123.

7.1-294

551.578.11:532

Pearcey, T. and McHugh, B., **Calculation of viscous flow around spheres at low Reynolds numbers.** *Philosophical Magazine*, Ser. 7, 46(378):783-794, July 1955. 6 figs., table, 4 refs. eqs. **DWB**—Knowledge of the flow to be expected in a viscous medium surrounding a uniformly translated sphere is important in, e.g., the interaction between two neighboring droplets falling freely through air. Computations based on OSEEN's approximation to the hydrodynamic equations are shown in plots of flow round a sphere at Reynolds numbers 1, 4 and 10. "A strongly marked wake is apparent even at the lowest Reynolds number. The boundary of the wake becomes more marked as R increases and is bounded by a thin layer in which the fluid motions are particularly small and of rapidly changing direction. No vortex is attached to the rear of the sphere even at $R=10$, although the presence of a 'boundary layer' to the front is well indicated." *Subject Headings: 1. Flow around raindrops 2. Fluid flow.*—*C.E.P.B. and authors' abstract.*

7.1-295

551.578.13(64)

Bidault, G., **Note sur la pluviométrie du premier et du deuxième trimestres de l'année agricole 1951-1952, de septembre à février 1952 inclus.** [Note on the rainfall of the first and second quarter of the agricultural year 1951-1952, from September 1951 to February 1952 inclusive.] *Notes Marocaines*, Rabat, No. 1:4-5, 1952. diagr. **DWB**—Isohyetal charts for each of the two quarters (Sept.-Nov. 1951 and Dec.-Feb. 1952) and anomaly chart for the same two periods are presented for Morocco and discussed. The total for the 6 months was not far from normal for the whole region, though in individual months the local amount varied from none (in Moyenne Moulouya) to 10% of normal (Haouz de Marrakech, Feb.) to 1000% of normal (Moulouya Valley, Dec.). *Subject Headings: 1. Rainfall variations 2. Morocco.*—*M.R.*

7.1-296

551.578.4:656.2:621.31

Seki, Shiro, **Snow and railway electrification.** *Researches on Snow and Ice*, Tokyo, No. 1:7-12, Nov. 1953. 2 figs., 4 tables, 6 refs. In Japanese. **DWB**—Railway traffic problem

he region of heavy snow cover are described. Among all, railway electrification presents many engineering difficulties, especially in planning Japan's snow-plow and electric trains. **Subject Headings:** 1. Snow on railroad beds 2. Snow on power lines 3. Railway electrification Japan.—H. Arakawa.

7.1-297

551.578.46

Ishihara, Kenji, **Sekisetsu fukasa henka no yoho**. [The forecast on the change of daily snow cover depth.] *Seppyo* [Snow and Ice], Tokyo, 13(2):31-35, Sept. 1951. 6 figs., 2 eqs. In Japanese. **DWB**—Snow on the ground subsides gradually day after day by sublimation, so the depth of snow cover decreases and the density increases day after day. Experimental formulas on the decrease of snow cover depth and the increase of snow density, giving the result of the observation on snow cover in Sekiyama, Niigata Prefecture, in winter

1947-1948, are: $\frac{\Delta H}{\Delta H_0} = 1 - \frac{t}{2.23 + 1.13t} = f(t)$; and $\frac{\xi}{\xi_0} = 1 + \frac{t}{2.23 + 0.13t}$, where t is the time

(unit is day), $\Delta H/\Delta H_0$ is the rate of decrease in the depth of snow cover and ξ/ξ_0 is the rate of increase in the density of snow cover. If we have the amount of snowfall ΔH_1 on the first day, ΔH_2 on the second day, and ΔH_n on the n -th day, the snow cover depths are as follows: on the first day, $\Delta H_1 f(0)$; on the second day, $\Delta H_1 f(1) + \Delta H_2 f(0)$; and on the n -th day, $\Delta H_1 f(n-1) + \Delta H_2 f(n-2) + \dots + \Delta H_{n-1} f(1) + \Delta H_n f(0)$. Then the snow cover depth on the n -th day

$I_n = \sum_{i=1}^n \Delta H_i f(n-i)$, where i is the day number from the first fallen snow. The calculated

daily snow cover depth using above formulas is shown in a figure with the observed snow cover depth. For other phenomena, except sublimation (i.e., rain, sunshine, etc.), the above formulas cannot be used. **Subject Headings:** 1. Snow density profiles 2. Snow cover depth. *Author's abstract.*

7.1-298

551.578.46:551.551

Shiotani, Masao, **On the snow storm**. *Researches on Snow and Ice*, Tokyo, No. 1:29-33, Nov. 1953. 4 figs., 6 refs. **DWB**—The author intended to show that drifting snow is an Austausch phenomenon due to eddy diffusion. Modified eddy viscosity coefficient K is introduced, taking into consideration the motion of the snowflake itself. **Subject Headings:** 1. Snow drifts 2. Eddy diffusion 3. Atmospheric turbulence.—H. Arakawa.

7.1-299

551.578.46(411)

Spink, P. C., **Summer snows around Ben Nevis**. *Weather*, 10(8):270-271, Aug. 1955. 2 photos. **DWB**—Description of state of snow beds and dirt polygons on Aug. 8-10, 1954. The large amount of snow was due to the cold snowy year. **Subject Headings:** 1. Snow drifts Ben Nevis, Scotland.—C.E.P.B.

7.1-300

551.578.7(56)

Davis, P. H., **Anatolian hail-storm**. *Weather*, 10(8):277, Aug. 1955. 2 photos facing p. 271. **DWB**—Description and photos of hailstorm between Kastamonu and Kure, at 3500 ft, June 8, 1954. Largest hailstones 1 in. across. **Subject Headings:** 1. Hailstorms 2. Anatolia. C.E.P.B.

7.1-301

551.578.7

Yannakopoulos, P. (*Nat. Met. Obs., Athens*), **Una gradinata eccezionale ad Athene: quella del 24 aprile 1954**. [Unusual hail at Athens, April 24, 1954.] *Geofisica e Meteorologia*, Genova, 2(3/4):55-56, May/Aug. 1954. 4 figs. **MH-BH**—The synoptic situation associated with the hail which fell at 1805 h on April 24, 1954 is described. The hailstones were the size of peas and nuts. Analysis of the synoptic charts and of the tephigram suggests that the exceptional size of the hailstones is the result of an unstable air mass arriving from NNW and its sudden lowering. **Subject Headings:** 1. Hail 2. Athens, Greece.—I.L.D.

HYDROMETEOROLOGY

See also: **Hydrological yearbooks** (Goliatin), 7.1-11; **Soil moisture conservation** (Cherkasov), 7.1-14; **Hydrology bibliographies** (I.U.G.G.), 7.1-73; **Transpiration of trees** (Ivanov et al.), 7.1-270; **Pluvial & moist soil periods** (Wundt), 7.1-291.

7.1-302

551.579(458) 551.58(458) 551.506.1(458)

*Italy. Ufficio Idografico, Bari, **Annali idrologici**, 1949, 1950. [Hydrological yearbook 1949, 1950, for the basins of the Adriatic and Jonic coast from Candelaro to Lato.] Roma 1955. 2 pieces, almost entirely tables, (1949, 82 p., 29 figs.; 1950, 75 p., 12 figs.). DWB—Standard form of hydrological yearbook as published by other hydrological services in Italy and Sicily (see 7.1-303) containing daily and monthly temperature data for 63 stations and rainfall data for 115 (63 recording and 52 nonrecording rain gages) stations in the S.E. of Italy. None of the stations are above 900 m. Maximum intensity and duration data, and snowfall data (19 stations) are included. Snow occurred on only a few days in Jan.—March. Hydrologic balance data and temperature and rainfall data are presented in graphic form on charts, and analyzed in the last section. Individual storms are analyzed graphically. *Subject Headings*: 1. **Hydrologic yearbooks** 2. **Annual meteorological reports** 3. **Climatic data** 4. **Adriatic Coast, Italy**.—M.R.

7.1-303

551.579(458):551.506

*Italy. Ufficio Idrografico della Sicilia, Palermo, **Annali idrologici**, 1943, 1944 and 1945. [Hydrological yearbook for the basin along the coast of Sicily, 1943, 1944 and 1945.] Roma Istituto Poligrafico dello Stato, 1954. 3 pieces. about 75 p. each. diagrs., numerous tables. DWB—Contains daily values of temperature for 42 stations (mean and extreme), precipitation and snow cover for 200 stations in Sicily; as well as river gage, ground water, runoff and other hydrographic data. Charts of Sicily show stations, drainage basins, isohyets, etc. Graphs show seasonal variations in various parameters. Snow occurs at most stations from 1000 to 4000 ft elevation for a week or so in Jan. and Feb. and sometimes in Dec. and March, or even April. Some textual material provides analysis of conditions during each year. (For 1943, Pt. 1, and 1946, both pub. 1951, see 3.10-47, Oct. 1952, MAB. For 1941, Pt. 2, pub. 1951, and 1949 and 1950, both pub. 1953 see 5.9-45, Sept. 1954, MAB.) *Subject Headings*: 1. **Annual meteorological reports** 2. **Hydrologic yearbooks** 3. **Climatic data** 4. **Sicily**.—M.R.

7.1-304

551.579:551.506

Muhammad Umar, Chaudhari (Karachi), **Unit hydrograph as a hydrologic tool**. *Pakistan Journal of Science*, Lahore, 6(2):95-101, April 1954. 4 diagrs., 3 tables. DWB—It is shown how hydrologic values can be conveniently derived from rainfall data by means of the unit hydrograph method. Advantages of the method over other methods, especially in flood forecasting, are pointed out. A practical example of computations performed with the unit hydrograph is given by applying the method to hydrologic evaluation of the Sohan River basin (Punjab, India). *Subject Headings*: 1. **Unit hydrograph data** 2. **Hydrologic analysis** 3. **Sohan Basin, India**.—G.T.

7.1-305

551.579.4:681.5

Yabroff, Irving, **A report on the design of an electronic flood routing computer**. Stanford University. Dept. of Civil Engineering, Contract Cwb-8323 [unnumbered report], March 1954. 10 p. diagrs. Mimeo. DWB—An improved flood routing computer which solves the equation $S = aI + bO^n + cIO^n$, where S is storage, I is input, O is output and a , b , c , and n are constants depending on the characteristics of the river, basin or reach, is described and the circuits illustrated (based on Beckman Electronic Analog Computer of Stanford School of Engineering). The input devices, output recorder, costs (about \$5000) and efficiency of the computer are also covered in some detail. *Subject Headings*: 1. **Flood routing computers** 2. **Analog computers** 3. **Electronic flood routing computers**.—M.R.

7.1-306

551.579.5:631.5

Abramov, F. G., **Opređenje vodopronitsaemosti pochvy pri dozhdavanii**. [The determination of water permeability of soil during sprinkling.] *Pochvovedenie*, Moscow, N

71-79, Nov. 1954. 3 figs., 9 refs., 4 tables, 9 eqs. **DLC**—The author presents a method of calculating the intensity of rain, the rate of absorption as a function of amount of sprinkling, of the drops together with characteristics and condition of the soil, plant cover and other factors that influence the permeability of the soil during its various stages. The coefficient is equal to the cube of the rain intensity during the time of appearance of small pools of water in the course of sprinkling with the given intensity. The rate of absorption is $I = \sqrt{K/N}$ where N —amount of sprinkling in millimeters. For soils with a sparse vegetation cover, a correction for drop sizes above 1 mm diameter is included; $K = K_0 d_0/d$ where K corresponds to sprinkling with drops of diameter d and K_0 with drops of diameter d_0 . The method of determining K together with its sprinkling device is described; the latter is illustrated. *Subject Headings: 1. Soil permeability 2. Sprinkling.—I.L.D.*

7.1-307 551.579.5:551.48 551.49
 Chebotarev, I. I., **The salinity problem in the arid regions.** *Water and Water Engineering*, 7(707,708):10-19, 58-68, Jan.-Feb. 1955. 30 figs., 27 tables, 79 refs. **DLC**—The salinity problem in irrigated and dry farming areas is discussed. The origin of soluble salts and the quantity of rain water, rivers and lakes, oceanic waters and salt lakes are examined with many tables. Author then turns to variations of salt in underground waters and the numerous factors causing them—rate of exchange, hydraulic gradient, depth to water table, distance from intake and pumping. Pt. 2 of this important memoir deals with salinity of underground waters in relation to local environment. *Subject Headings: 1. Underground water 2. Salinity.—C.E.P.B.*

7.1-308 551.579.5:628.1
 Chebotarev, I. I., **Yield capacity of the aquifer.** *Water and Water Engineering*, 58(702):6-357, Aug. 1954. 4 figs., table, 10 eqs. **DLC**—Graphs and equations are given for the yield of a well of given diameter in terms of cross-sectional area of the water-bearing stratum, hydraulic gradient, coefficient of permeability and velocity of underground flow. It is shown that the yield of a well increases very slowly with diameter, in the ratio of only 1:1.94 with increase from 1-40 ft. The optimum diameter is 27 cm. *Subject Headings: 1. Underground water 2. Water supply.—C.E.P.B.*

7.1-309 551.579.5
 Czihak, Gerhard, **Eine einfache Methode zur Bestimmung der Feuchtigkeit des Bodens.** [A simple method for determining soil moisture.] *Wetter und Leben*, 6(1/2):31-37, March 1954. 4 figs., table, 3 refs. **DWB**—The method proposed involves measuring the rate of ascent of water in strips of filter paper. Rate of ascent of water in the filter paper varies with temperature and also with salt concentration. Similar results are obtained when moist sand is used and the rate of ascent of water varies with volume relationships between substance and water. The method for using this technique to determine soil moisture content is illustrated. *Subject Heading: 1. Soil moisture measurement.—I.L.D.*

7.1-310 551.579.5:551.501
 Heigel, Karl (*German Weather Serv., Hohenspeissenberg, Upper Bavaria, Germany*), **Boodenfeuchtemessung mit Gipsscheibenelektroden.** [Soil moisture measurements with gypsum disk electrode.] *Geofisica Pura e Applicata*, Milan, 29:106-114, Sept./Dec. 1954. 4 figs., table, 8 refs. German and English summaries p. 106. **MH-BH**—The resistance of gypsum disk units for soil moisture measurements is determined not only by the amount of water in the gypsum, but also by temperature, quality of soil and characteristics of the unit. Quality of soil and individuality of the unit require calibration of each unit in the soil to be assured. Sources of error result from the applied procedure of calibration because the "natural" soil cannot be reproduced completely, and from premature corrosion of the electrodes. Measurements by gypsum disk units determine the supply of useful amounts of soil moisture in natural unfertilized soils. *Subject Headings: 1. Soil moisture measurement 2. Gypsum disk electrode.—Author's abstract.*

7.1-311

551.579.5:551.579

Kalinin, G. P. and Zmиеva, E. S., **O regulirovanii stoka talykh vod s sel'skokhoziaistvennykh ugodii.** [Regulation of runoff of melt water from agricultural lands.] *Meteorologicheskaya Gidrologiya*, Leningrad, No. 1:16-22, Jan./Feb. 1955. 2 figs., table, 7 eqs. DWB—Proceeding from the equation of water balance, the author discusses various means for increasing the percolation of water into the soil, for increasing the soil moisture supply and the dependence of soil moisture upon hydro-meteorological conditions, and develops the equation for calculating the percolation of water in the upper, thawing, soil layers and the area which it is necessary to free from snow in order to absorb fully the flow depending upon the moisture content deficit in the soil. A comparison between theoretical and actual results is presented. *Subject Headings: 1. Percolation 2. Soil moisture 3. Snow melt.—I.L.D.*

7.1-312

551.579

Koehne, W., **Wie steht es zur Zeit mit den Grundwasservorräten?** [What is the present position of ground water reserves?] *Umschau*, 55(14):420-421, July 15, 1955. fig., 2 refs. DLC—The folly of generalizing is shown by a comparison of ground water level at Bielefeld and Berlin with the rainfall of 1946-55. The causes (differences of subsoil and drainage) are briefly explained. *Subject Heading: 1. Ground water variations.—C.E.P.B.*

7.1-313

551.579

Raffo, José M., **Variaciones de la napa frática en relacion con la precipitación, la presión atmosférica y la temperatura.** [Variations of ground water levels in relation to precipitation, atmospheric pressure and temperature.] *Meteoros*, Buenos Aires, 4(4):367-380, Oct./Dec. 1954. 12 figs., 2 tables. Spanish and English summaries p. 367. DWB—The author presents the results of a large series of ground water observations (1912-1953) carried out in different parts of Argentina in order to determine the relationship between the variations of ground water level and precipitation, the level of water in wells and atmospheric pressure and air temperature at the place of observation. *Subject Headings: 1. Ground water variations 2. Ground water-precipitation relationships 3. Argentina.—I.L.D.*

CLIMATOLOGY AND BIOCLIMATOLOGY

CLIMATOLOGY

See also: **Agricultural climatology** (Thorntwaite), 7.1-79; **Climatic data** (Italy. Ufficio Idografico, Bari), 7.1-302.

7.1-314

551.58:06(71):681.1

Boughner, C. C., **Development program, Climatological Section, May 1954.** *Canadian Meteorological Div., CIR-2490, CLI-12*, June 3, 1954. 11 p. Mimeo. DWB—The present organization and functions of the Climatological Section of the Canadian Meteorological Service, and the publications issued, number of stations and types of observations taken throughout Canada are reviewed in this report. Special attention is given to present and future needs in personnel and machines for an expanding "punched card" program. Plans are outlined for gradually converting all tabulation and summarization work to machines. The program was begun in 1950 in response to IMO, CCI resolution of 1947 regarding international use of punched cards. *Subject Headings: 1. Climatological services 2. Punched card programs in climatology 3. Canada.—M.R.*

7.1-315

551.58:519.24(43)

Dammann, W. (*Bad Kissingen*), **Die "wirkliche" Andauerzahl, ein wichtiges Hilfsmittel in der vergleichenden und angewandten Klimatologie.** [The "actual" persistence number an important aid in comparative and applied climatology.] *Berlin. Freie Universität. Institute für Meteorologie und Geophysik, Meteorologische Abhandlungen*, 2(4):63-82, 1955. 15 figs., table, color charts, 2 refs. DWB—An excellent analysis of data on duration of tem

atures of $\geq 5^{\circ}$, 10° and 15°C , respectively, to show the discrepancy between values calculated from monthly mean temperatures and those from "actual" hourly values. This discrepancy is so great in interior stations where diurnal variation is great, that a chart of $\geq 10^{\circ}\text{C}$ for N.W. Germany shows an almost reversed picture when made from actual rather than mean values. Similar treatment is given the 1949 data for relative humidity of $\geq 50\%$ for day and night, summer and winter and for the year as a whole. The annual curve for temperature $\geq 10^{\circ}\text{C}$ shows a marked bimodal distribution and so do the graphs for day and for night, respectively. The discussion emphasizes the importance of the methodology for engineering or applied climatology. *Subject Headings:* 1. Climatic analysis 2. Temperature persistence 3. Humidity persistence 4. Statistical methods in climatology 5. Diurnal temperature variations 6. Germany.—*M.R.*

CLIMATE OF PARTICULAR PLACES

See also: Climate of Middle Volga region (Mil'kov), 7.1-15; Weather & climate of Indochina (U.S.A.F. Tokyo Weather Central), 7.1-22; Liverpool Obs. (Reynolds), 7.1-47; Agric. met. (Bantegui), 7.1-80; Soil erosion (Cabral), 7.1-81; Marine climatology—North Sea, 7.1-100; Climate of West Scotland, 7.1-101; Climate of West Africa, 7.1-102; Hydrographic data for North Pacific (Japan. Hydrographic Dept.), 7.1-121.

7.1-316 551.582(47)
Isherskaia, E. V., *Nekotorye nabludeniia nad mestnym klimatom doliny reki Volgi*. [Observations on the local climate of the Volga River Valley.] (In: *Akademiia Nauk SSSR, Institut Geografii [and] Institut Lesa, Mikroklimaticheskie i klimaticheskie issledovaniia v Kaspiiskoi Nizmennosti*, Moscow, 1953. p. 94-99. 4 tables, 3 refs.) *DLC*—A series of parallel meteorological observations (air temperature, humidity, wind speed and direction) on the left bank terraces of the Volga near Saratov compared with a section of the left bank of the Volga (a typical steppe) were carried out in the summer 1951 by a group of students of Saratov University under the supervision of the author. Comparative tables of average values of wind speed, temperature and humidity show no considerable differences. *Subject Headings:* 1. Local climates 2. Climate of Volga River Valley 3. Weather comparisons Volga River Valley, U.S.S.R.—*A.M.P.*

7.1-317 551.582(420)
Lawrence, E. N., *New year weather in Britain*. *Weather*, 9(2):35-36, Feb. 1954. *DWB* Remarks on natural history and quotations of poetry of winter. *Subject Headings:* 1. Local climates 2. Great Britain.—*C.E.P.B.*

7.1-318 551.582:629.13(883)
*Surinam. Meteorological Service, *Meteorological summary, Aerodrome Zanderij* (225), Dec. 1954 and Jan. 1955. 2 pieces. entirely tables. Mimeo. Also: *Meteorological summary*, 1954. 1 p. table. Mimeo. *DWB*—Monthly and annual data for Zanderij Aerodrome, Surinam (Netherlands Guiana), for usual airways data (dry and wet bulb temperatures, dew point, relative humidity, pressure, maximum and minimum temperatures, precipitation and sunshine %). Daily and hourly values are given for each element. Congency tables give concurrent wind direction and speed. *Subject Headings:* 1. Monthly weather bulletins 2. Zanderij Airport, Surinam.—*M.R.*

7.1-319 551.582(97)
Taylor, B. W. (*Botany Dept., Sydney Univ., N.S.W., Australia*), *An example of long distance dispersal*. *Ecology*, 35(4):569-572, Oct. 1954. ref. *DLC*—This paper which deals with the origin of the flora of Macquarie Island contains a brief description of the climate. *Subject Headings:* 1. Climate of Macquarie Island 2. Macquarie Island.—*I.L.D.*

7.1-320 551.582:634.94(73)
Woodin, Howard E. and Lindsey, Alton A. (*Middlebury Col., Middlebury Vt., and Purdue Univ., Lafayette, Ind.*), *Juniper-pinyon east of the continental divide, as analyzed by the line-*

strip method. *Ecology*, 35(4):473-489, Oct. 1954. 5 figs., 2 tables, refs. **DLC**—The climate characterizing the region of distribution of the juniper-pinyon type east of the Continental Divide is described on the basis of climatological data from 23 weather stations in Colorado, New Mexico and Texas. Rainfall distribution, temperature variation and length of frost-free periods are discussed and climagrams dividing the region into northern, central and southern subdivisions are presented. *Subject Headings:* 1. Forest ecology 2. Climatic regions 3. Climagrams 4. Southwestern States.—*I.L.D.*

7.1-321

551.582.1(47)

Lessmann, Helmut (*Baldenweger Hof*), **Ein Beitrag zum Sonderklima der unteren Schwarzwaldtäler.** [A contribution to the local climate of the Black Forest valleys.] *Baden. Landeswetterdienst, Jahresbericht mit Abhandlungen, 1951/1952.* p. 129-133. 2 figs. **DWB**—Description of local weather situations caused by a cold air lake in the Rhine Valley with fog cover advancing in the side valleys. Some data for neighboring stations are presented. *Subject Headings:* 1. Local climates 2. Cold air lakes 3. Fog 4. Rhine Valley 5. Black Forest, Germany.—*A.A.*

7.1-322

551.582.2(8)

*de Paul Fantini, Antonio; Fisher, Heriberto G. and Vazquez, Juan B., **Reconocimiento agrohidrológico del area de influencia del Dique Rio los Molinos. Zona Economica No. 1. Punto 1 del Plan quinquenal.** [Agrohydrological exploration of the area affected by the Rio los Molinos Dam.] *Argentina. Instituto de Suelos y Agroecología, Publicación, No. 29, 1952.* 31 p. 16 photos, tables, diagr. (fold.), 5 refs. **DWB**—The climatic data given in this study include mean monthly values of amounts of rainfall and days with rain for several stations; mean monthly values of temperature, relative humidity, vapor, pressure and of evaporation at Pilar. *Subject Headings:* 1. Climatic data 2. Climate of Pilar 3. Pilar, Argentina.—*I.L.D.*

7.1-323

551.582.2(471.1) 551.52:

*Lunelund, Harald, **Synpunkter på Finlands klimat.** [Views on the climate of Finland.] *Finska Vetenskaps-Societeten, Helsinki, Årsbok-Vuosikirja*, Vol. 21, Ser. B, No. 6, 1942/1943. 18 p. 9 figs., 5 tables. **DLC**—A concise description of the climate of Finland, particularly with reference to plant growth. The author describes the distribution of the mean temperature $>5^{\circ}\text{C}$ and $>10^{\circ}\text{C}$, the northern boundary of various grasses and shrubs, amount of solar radiation received on a horizontal surface and upon a cube (during the period when the mean temperature is $>5^{\circ}\text{C}$) expressed in kg cal/cm^2 , fruit cultivation zones, climatic zones and distribution of thermal regions, in Finland. Isolines of these various characteristics are presented. *Subject Headings:* 1. Climatic data 2. Solar radiation data 3. Agriculture and climatology 4. Climate of Finland 5. Finland.—*I.L.D.*

7.1-324

551.582.2(72)

*Mexico. Servicio Meteorológico, **Normales mensuales para los valores del "Climat"** [Monthly norms for "Climat" data.] Tacubaya, Nov. 12, 1954. 7 p. entirely tables. On t-p: *Climo*, No. 54. **DWB**—"Climat" normals for 10 stations in Mexico are given in tables for 1921-50, for pressure, temperature, relative humidity, precipitation and precipitation quintiles, for each month of the year. The data are used in calculating departures from normal or anomalies of temperature, relative humidity or precipitation for the monthly "Climat" broadcasts. (See also 2.11-21, Nov. 1952, *MAB.*) *Subject Headings:* 1. "Climat" normals 2. Mexico. I. World Meteorological Organization.—*M.R.*

CLIMATIC CHANGES

See also: Seasonal forecasting (Takahashi et al.), 7.1-172; Pluvial & moist soil periods (Wundt), 7.1-291.

7.1-325

551.583 551.513:551.590.2

Massachusetts Institute of Technology, **About the weather.** Its *Reports on Research* 5(8), June 1954. 4 p. **DWB**—Past (1936-47), present (1948-54) and future phases of work

by VICTOR STARR and H. C. WILLETT at Massachusetts Institute of Technology on the study of the general circulation, solar influences on the circulation, and climatic changes due to solar variations are discussed in the section called **About the weather**. Long range forecasts are prepared at the end of each calendar month and season for the next two months and seasons, respectively. *Subject Headings*: 1. General circulation studies 2. Long range forecasts.

7.1-326 551.583.3(661):551.577.37
Kubliëna, Walter L., **Über die Braunlehmrelikte des Atakor (Hoggar-Gebirge, Zentral-Sahara)**. [On the brown loam relict of the Atakor, (Hoggar Mountains, Central Sahara).] *Zeitschrift für Geologie*, 9(2):115-132, 1955. 5 figs., 3 plates, 8 refs. English summary p. 115; German, 131-132. DWB—A layer of brown loam is found in the High Atakor which was formed in a pronounced humid subtropical to tropical climate. It was probably formed in the last great pluvial period. *Subject Headings*: 1. Pluvial periods 2. Hoggar Mountains, Sahara.—C.E.P.B.

7.1-327 551.583.3:551.44
Mensching, H., **Karst und terra rossa auf Mallorca**. [Karst and red earth on Majorca.] *Zeitschrift für Geologie*, 9(3):188-196, 1955. fig., 5 plates, 14 refs. English summary p. 188. DWB—Extensive red earth and gravel sheets occupy the slopes above 500 m and fill the Karst depressions. They were formed by solifluction during the Würm glacial period, when the rainfall was much heavier than now and the climate intermediate between the glacial of Europe and the pluvial of North Africa. *Subject Headings*: 1. Karst 2. Quaternary climates 3. Majorca.—C.E.P.B.

7.1-328 551.583.7:525.3:550.384.3
†Day, A. A. and Runcorn, S. K., **Polar wandering: some geological, dynamical and palaeomagnetic aspects**. *Nature*, London, 176(4479):422-426, Sept. 3, 1955. table, 14 refs. DWB J. W. DURHAM said that tropical and warm temperate marine faunas in temperate and subarctic regions surrounding the poles in early Tertiary showed that they must have been near their present position. Continents must have been as far apart as now. W. J. ARKELL said that in Jurassic and Cretaceous, north pole was in present position and ice-free; earth was warmer than now. On the other hand, T. GOLD discussed the dynamics of pole wandering and said that the rate of melting of Greenland ice gave about the right order of magnitude of recent pole movements. S. K. RUNCORN said the axis of the magnetic field over long periods must coincide with the axis of rotation, and its mean direction has changed slowly, indicating that the north pole has moved from mid-Pacific since Pre-Cambrian. O. T. JONES said the red sandstones of Devonian and Triassic in Britain suggested derivation from tropical climes. *Subject Headings*: 1. Paleoclimatology 2. Polar displacement 3. Magnetic secular variations.—C.E.P.B.

MICROCLIMATOLOGY

See: **Expeditions** (Dokuchaev), 7.1-36.

CLIMATIC CLASSIFICATION

See also: **Descriptive & dynamic met.** (Toscano), 7.1-21; **Mechanism of air warming** (Monin), 7.1-27.

7.1-329 551.585:63
Visher, Stephen S. (*Indiana Univ.*), **Comparative agricultural potentials of the world's regions**. *Economic Geography*, Worcester, Mass., 31(1):82-86, Jan. 1955. 2 figs., table. LC—A rating system is proposed for evaluating regional agricultural potentials. Scores from 0 to 4 are assigned to each of the following seven criteria: topographic suitability, soil

quality, warmth adequacy, precipitation adequacy, suitability of precipitation time distribution (seasonal and intensity), weather dependability (including storms) and accessibility of markets. The total rating is obtained as a sum of the partial scores. The world is divided into 10 regions and each of them is evaluated. Partial and total scores are tabulated and a map showing the rating of each region is presented. *Subject Heading: 1. Agro-climatic regions*—G.T.

BIOCLIMATOLOGY

See also: Arctic medicine & dentistry (Eisberg, Owens), 7.1-18; *Climate & life* (Pavlov), 7.1-20; *Biol. Abstracts*, 7.1-76; *Agric. met.* (Bantegui), 7.1-80; *Met. & tsetse-fly* (Thompson), 7.1-97; "Creeping suicide," 7.1-98; *Artificial hibernation* (Silva Ferrer), 7.1-99; *Med. climatology* (Bittner), 7.1-279.

7.1-330

551.586(6)

Warmbt, W., *Meteoropathologie vor 100 Jahren: ein Beitrag zur Geschichte der Bioklimatologie*. [Meteoropathology 100 years ago: a contribution to the history of bioclimatology.] *Angewandte Meteorologie*, 2(5):129-135, July 1955. fig. Nachwort (Postscript) by H. Tichy, p. 136. **MH-BH**—Discussion of: Ackermann, Harald, *Das Wetter und die Krankheiten*. [Weather and diseases.] pub. Kiel, 1854. The book deals first with the meteorological elements, and then with their influence, especially warmth, on disease in Sylt. Author recognized the different individual responses. H. TICHY adds some medical details. *Subject Headings: 1. History of bioclimatology. I. Ackermann, H. II. Tichy, H.*—C.E.P.B.

7.1-331

551.586:61

Hentschel, G., *Beziehungen zwischen Wetterlage und Blutsenkung bei tuberkulösen Patienten*. [The relation between weather situation and anemia in tuberculous patients.] *Angewandte Meteorologie*, 2(5):137-143, July 1955. fig., 2 tables, 5 refs. **MH-BM**—In the tuberculosis section of a hospital in Wilhelmshall, measures of blood corpuscle decrease (BKS) were taken every 14 days. Percent of cases with rise, and intensity of rise or fall, are shown for 10 months. Results of comparison of figures for anticyclonic and cyclonic days are complex but it appears that on "effective" anticyclonic days a majority of patients showed rise in BKS while on cyclonic days with advection of warm air there was a marked increase of average intensity of rise. *Subject Headings: 1. Bioclimatic research 2. Tuberculosis.*—C.E.P.B.

7.1-332

551.586:616(211)

Howard, Richard A., *An analysis of survival experiences in Arctic areas*. *U. S. Arctic Desert, Tropic Information Center, ADTIC Publication*, No. A-103, April 1953. 50 p. **DW**—A paragraph on the weather extremes encountered in the Arctic is found on p. 6. *Subject Headings: 1. Arctic survival 2. Arctic weather extremes 3. Arctic.*—M.R.

7.1-333

551.586:633

Zaleski, A., *Lucerne seed growing*. *Agriculture*, London, 61(9):418-423, Dec. 1954. 5 refs. **DA**—A survey of lucerne seed production in S. and E. England was made in 1951-53. Weather conditions are especially important and a number of failures are attributed to climate especially high humidity after harvesting. *Subject Headings: 1. Bioclimatology 2. Lucerne*—C.E.P.B.

7.1-334

551.586:638

Seyfert, F., *Die Bedeutung phänologischer Beobachtungen für die Imkerei*. [The importance of phenological observations for beekeeping.] *Angewandte Meteorologie*, 2(5):155-157, July 1955. **MH-BH**—It is difficult to relate yield of honey to meteorological elements because weather influences both flight of bees and flowering of plants. Plant phenological data can be used with meteorological observations to guide the beekeeper as to the best early pollen and nectar plants to cultivate. *Subject Headings: 1. Phenology 2. Apiculture.*—C.E.P.B.

UPPER AIR CLIMATOLOGY

See: Aeronautical charts (Ono), 7.1-266.

SYNOPTIC CLIMATOLOGY

See: Annual meteorological reports (France. Mété. Nationale), 7.1-138.

MISCELLANEOUS

SOLAR INFLUENCES

See: Radar meteor obs. (Shain, Kerr), 7.1-132; About weather (Mass. Inst. of Techn.), 7.1-325.

OPTICAL PHENOMENA

See also: Earth's gaseous tail (Fesenkov), 7.1-190; Visible acoustical waves (Temchenko), 7.1-359.

7.1-335

551.593.1

†Meyer, R., *Atmosphärische Strahlenbrechung*. [Atmospheric refraction.] *Handbuch der Geophysik*, Berlin, 8 4:769-786, 1955. diagrs., numerous foot-refs., eqs. DWB—This review of the physics of atmospheric refraction assumes a completely transparent atmosphere in which only the refraction indexes of air and their spatial distribution influence the propagation of light waves. This review includes the propagation of light in the atmosphere, the bending of light rays, refraction in an ideal atmosphere, pictures arising in the optical system of an ideal stratosphere, normal astronomical refraction, consequences of normal astronomical refraction and persistent disturbances of astronomical refraction. The concept and methods of elementary geometrical optics are analyzed in treating the propagation of light waves in the atmosphere. *Subject Heading: 1. Atmospheric refraction.—I.L.D.*

7.1-336

551.593.55

Dege, Wilhelm, *Einige Beobachtungen über Dämmerungs-Erscheinungen auf der Station "Haudegen," Nordostgrönland, 80°4'N, 22°24'E im Winter 1945*. [Some observations of twilight phenomena at Haudegen, N.E. Greenland, winter 1945.] *Polarforschung*, Kiel, Ger. 3, 23 1 2:237-239, 1953. DWB—Direct sunlight last seen Oct. 18 for a few minutes. The whole ice cap glowed with all shades of red. The reappearance of the sun on March 1 was heralded by twilight phenomena, possibly as early as Jan. 12. Several observations in Jan. and Feb. 1945 are described. On Feb. 8 it was light enough to read from 9-14½ h. *Subject Headings: 1. Twilight phenomena 2. Greenland.—C.E.P.B.*

7.1-337

551.593.6:535.4

Gucker, Frank T., Jr. and Cohn, Stanley H., *Numerical evaluation of the Mie scattering coefficients: table of the angular functions π_n and τ_n of orders 1 to 32, at 2.5° intervals*. Indiana Univ. Dept. of Chemistry, Contract AF 19(122)-375, Scientific Report, No. 1, [1953]. refs., tables, 19 eqs. DWB. Also in: *Journal of Colloid Science*, N. Y., 8(6):555-574, Dec. 1953. DLC—In connection with a program of calculating the light-scattering properties of isotropic spherical particles over a wide range of the parameter α and refractive index m , we have tabulated the angular functions π_n and τ_n for values of the angle 0° (2.5°) 180° , and orders 1 to 32. From our experience in this work, the following suggestions are made toward standardizing and simplifying the form of the Mie scattering coefficients: (1) Use of van de Hulst's scattering coefficients a_n and b_n . (2) Use of the scattering angle θ measured from the forward direction of the propagation of the incident light, as suggested by STRATTON and VAN DE HULST. (3) Incorporation of the factor $F(n) = (2n+1)/n(n+1)(x)$ into the tabulated angular functions $\pi_n(x) = F(n)\pi_n(x)$ and $\tau_n(x) = F(n)\tau_n(x)$, which are independent of particle size and refractive index, instead of the coefficients A_n and P_n , which are functions

of these variables. (4) Use of a suitable transformation to express the scattering function for real arguments in terms of real-valued functions only, eliminating all derivatives and separating the terms which are functions of α alone from those which are function of β , m . The function of β , m , may be calculated by means of a simple recurrence formula which is particularly useful when the refractive index is complex. Equations are given for calculating the Stokes parameters, which completely characterize the scattered light, when a spherical particle is illuminated with light plane-polarized in an arbitrary direction. *Subject Headings*: 1. Scattering of light.—*Authors' abstract*.

7.1-338

551.593.63

Gäbler, Horst, **Seltene Haloerscheinung in Bodennähe**. [Rare halo appearance near the ground.] *Zeitschrift für Meteorologie*, 8(4):127, April 1954. fig. DLC—The phenomenon of a complicated halo near the ground during clear weather observed by the author and his colleagues on Jan. 21, 1954 at 9 a.m. between Keilberg (1244 m altitude) and Fishberg in the southeast direction is described clearly and illustrated. *Subject Headings*: 1. Halos 2. Parhelia.—*A.M.P.*

7.1-339

551.593.63

Parovina, O. K., **Nabliudenie galo i lozhnykh solnts**. [Observation of halo and mock suns.] *Priroda*, Moscow, 43(10):117, Oct. 1954. fig. DLC—A description, with the aid of a diagram, of the halo and two mock suns observed on March 18, 1954. This phenomenon was preceded by snow and accompanied by light feathery clouds through which the sun was shown brightly. *Subject Headings*: 1. Halo observations 2. Parhelia.—*I.L.D.*

7.1-340

551.593.63(94)

Sandner, Werner, **Halo-Beobachtungen in der Antarktis, 2. Mitt., die Beobachtungen der Byrd-Expedition 1940/41**. [Halo observations in the Antarctic, Pt. 2, Observations of the Byrd Expedition.] *Polarforschung*, Kiel, [Ser.] 3, 23(1/2):251-252, 1953. DWB—Observations at Little America (78°30'S, 163°50'W) 1940/41 are summarized, including annual and diurnal variation of frequency and some notes on other optical phenomena. *Subject Headings*: 1. Halo observations 2. Antarctica.—*C.E.P.B.*

7.1-341

551.593.63

Visser, S. W. and Alkemade, C. T. J., **Een Bovenraakboog aan de Kring van 24 1/2°**. [An arc tangent to a 24 1/2° halo.] *Hemelen Dampkring*, The Hague, 52(5):92-95, May 1954. 3 figs. MH-BH—An unusual double arc tangent to the upper limb of a 24.5° solar halo was observed by ALKEMADE on Nov. 8, 1944 at Brunswick, Germany, and is described in detail and illustrated. The optical geometry of the phenomena is also worked out and illustrated. Two possible ice crystal forms are predicted. CiSt clouds were present at 1615 h when the arcs were observed. *Subject Headings*: 1. Halos 2. Tangential arcs 3. Cirrus crystals.—*M.R.*

7.1-342

551.593.63:551.27

Visser, Simon Wilhelm, **Haloes, zonnevlekken en de uitbarsting van de Katmai**. [Halos, sunspots and the Katmai eruption.] *Hemelen Dampkring*, 52(10):177-182, Oct. 1954. 7 tables, 4 refs. MH-BH—The data of VAN EVERDINGEN, E. LEYST and RUDOLF MEYER and of the author on the relationship between sunspots and halos are examined to determine the existence of an inverse relationship between them. The relation between the eruption of Katmai and the monthly frequency of solar halos in the period 1911-1914 and that between sunspots on the one hand and halos, parhelia, sun pillars, and halo days is examined. It is concluded that in Holland halos diminish with increase in number of sunspots more than do parhelia. *Subject Headings*: 1. Halo—sunspot relationships 2. Katmai eruption.—*I.L.D.*

7.1-343

551.593.7:551.521

*Coulson, Kinsell L., **Polarization of light in the sun's vertical for a Rayleigh atmosphere**. California. Univ. at L. A. Dept. of Meteorology, Contract AF 19(122)-239, Investigation

Polarization of Sky Light, Scientific Report, No. 4, Nov. 1952. 40 p. 4 figs., tables. DWB—From the theory of radiative transfer developed by S. CHANDRASEKHAR, extensive computations were made to determine the degree of polarization of multiple scattered light in the sun's vertical, assuming a plane parallel Rayleigh atmosphere. The results of these computations are given for three different optical thicknesses, eight different values of zenith angle of the sun, and five different values of ground albedo for about thirty different zenith angles of observation. The theoretical distribution obtained by these calculations corresponds in most important respects to results obtained by observations in a clear atmosphere: the three neutral points (Arago, Babinet and Brewster) appear in their normal positions, the maximum polarization occurs at approximately 90 degrees from the sun, with minimum polarization in approximately the direction of the sun and the antisolar point. An increase of optical thickness increases everywhere the degree of polarization, with a corresponding shift of the neutral points away from the sun and the antisolar point. The effect of ground reflection is to decrease the magnitude of the degree of polarization without appreciably affecting the position of the neutral points. The knowledge of the distribution of degree of polarization for a Rayleigh atmosphere under the consideration of multiple scattering and of the ground reflection is necessary for evaluation of the effect of large particle scattering in the real atmosphere. *Subject Headings: 1. Arago's point 2. Skylight polarization.—Author's abstract.*

7.1-344

551.593.7:551.521

Coulson, Kinsell L., **Neutral points of skylight polarization in a Rayleigh atmosphere**. California Univ. at L. A. Dept. of Meteorology, Contract AF 19(122)-239, Scientific Report, No. 7, April 1954. 29 p. 5 figs., table, 8 refs. MH-BH—CHANDRASEKHAR's exact theory of radiative transfer in a plane parallel molecular atmosphere is used for the study of the behavior of the neutral points of skylight polarization. The results indicate that the angular distances between the sun and the neutral points or between the anti-sun and the Arago point are a function of sun elevation, optical thickness and ground reflection. Selected curves of angular distance versus sun elevation are given to show the general characteristics of the neutral point behavior, and the complete computational results are given in tabular form. The computations indicate that the neutral point positions are quite sensitive to sun elevation and to optical thickness, but that they are relatively insensitive to ground reflection. The expected results of a theoretically possible double Arago point is obtained. *Subject Headings: 1. Sky light polarization 2. Arago's point 3. Radiative transfer 4. Rayleigh atmosphere.—Author's abstract*

ELECTRICAL PHENOMENA

See also: Radar met. Van Biadel, 7.1-25; Auroral spectrographs (Jones, Gush), 7.1-151
Ionization measurem. Butterworth), 7.1-164; E-layer ionization & auroral luminosity (Omholt), 7.1-230.

7.1-345

551.594

Clark, J. F. and Kraakevik, J. H., **The charge on the earth**. *Journal of Atmospheric and Terrestrial Physics*, 6 6:344-345, June 1955. 9 refs. DWB—The average electric field beneath thunderstorms is near but probably less than 810 V/cm, which is the value required to balance the fair weather field. *Subject Heading: 1. Atmospheric electricity theories.—E.P.B.*

7.1-346

551.594.13

Ortner, Gustav and Fattah el Nadi, Abdel, **Intermediate and large atmospheric ions at Cairo-Giza**. *Journal of Atmospheric and Terrestrial Physics*, 7(1,2):31-39, Aug. 1955. 6 figs., tables, 5 refs. DWB—The mobility spectrum of ions with mobility $< 100 (\times 10^{-4} \text{ cm}^2/\text{volt-sec})$ was tested in a cylindrical condenser and found to be discontinuous. The mobilities of the large intermediate ions change from day to day and even hour to hour but 20 seems to be preferred; these ions were few. With larger ions peaks appeared at 6.7, 2.3, 1.0 and 0.6. The average ratio $-/+$ ions was 1.26. Visible light tended to increase the concentration of

ions with mobility >2 and decrease that of ions with mobility <2 . *Subject Heading: 1. Ion mobility.*—C.E.P.B.

7.1-347

551.594.2

Cotton, E. S., **Diurnal variations in natural atmospheric radioactivity.** *Journal of Atmospheric and Terrestrial Physics*, 7(1/2):90-98, Aug. 1955. 4 figs., table, 7 refs., 8 eqs. **DWB**—Radioactivity in the atmosphere depends on rate of exhalation, decay and loss from top of surface layer of the atmosphere. The emanation (curies/cm³) at the surface and its variation with height are calculated for day and night under simplifying assumptions and compared with measurements in two ionization chambers near Bedford, Mass. Maxima are related to variations of wind and time of minimum temperature, showing that variations of individual days can be explained by meteorological conditions. *Subject Heading: 1. Radioactivity in the atmosphere.*—C.E.P.B.

7.1-348

551.594.14:662.2:539

Preston, R. L. and Hogg, B. G., **Radioactive fall-out in Kingston, Canada.** *Nature in London*, 176(4479):459, Sept. 3, 1955. 1 fig. **DWB**—Tests of snow, rain and dust at Kingston 2200 miles N.E. of U. S. nuclear testing ground, Feb. 15 to May 28, 1955, show that every explosion was followed by radioactivity, but meteorological factors outweighed the magnitude of the explosions. *Subject Headings: 1. Atomic explosion effects 2. Radioactive fallout 3. Kingston, Canada.*—C.E.P.B.

7.1-349

551.594.2.3

Muchnik, V. M., **Tsepnoĭ protsess nakopleniia zariadov v grozovykh oblakakh.** [A chain process of accumulation of discharges in thunder clouds.] *Akademiia Nauk SSSR, Doklady*, 99(4):537-538, Dec. 1, 1954. 5 refs., 5 eqs. **DLC**—An equation expressing the accumulation of electric charges in thunder clouds is developed. This equation is $Q_p = Q_{p0} e^{ct}$, where Q_p is charge of the liquid drop region at initial time $t_0 = 0$, Q_{p0} —charge sufficient for the origin of lightning. The accumulation of charges and hence the growth of field strength proceed according to an exponential law; the growth of field strength leads to increased conductivity within the clouds and to a gradual slowing down in the increase of field strength. A thunder cloud is to be considered as a self-exciting electrical generator in which a chain-like process of charge accumulation occurs. *Subject Heading: 1. Thunderstorm electricity.*—I.L.D.

7.1-350

551.594.2.3

Bricard, J., **L'éclair.** [Lightning.] *La Météorologie*, 4th Ser., No. 35:231-237, July, Sept. 1954. 4 figs., 3 plates. French, English and Italian summaries p. 231. **DWB**—The definition of the earth's electrical field is reviewed. The statistical variations of the fair weather field are connected with the storm activity over the whole globe. The study of its variations in disturbed weather permits us to understand the electrical constitution and the value of the charges carried by the stormy clouds. The study of lightning was done first by means of a photographic survey, which shows the complexity of discharge, then through the electrodynamic and the electromagnetic investigation. Finally, characteristics of the lightning wave and its propagation mechanism are discussed. *Subject Headings: 1. Electricity of fair weather 2. Electricity of disturbed weather 3. Lightning.*—Author's abstract.

AURORAS

7.1-351

551.594.51

Wallace, L. V. and Nicholls, R. W., **The interpretation of intensity distributions in the N_2 second positive and N_2^+ first negative band systems.** *Journal of Atmospheric and Terrestrial Physics*, 7(1/2):101-105, Aug. 1955. 5 tables, 12 refs., 6 eqs. **DWB**—Photoelectric band intensities of the N_2 second-positive and N_2^+ first-negative systems, are interpreted, with the aid of Franck-Condon factors $q(v'v'')$ and r -centroids $\bar{r}_{v'v''}$ to show the dependence of the electronic transition moment $R_e(r)$ of these systems upon internuclear separations. Smoothed arrays of vibrational transition probabilities have been derived for these band systems. *Subject Heading: 1. Auroral physics research.*—Authors' abstract.

RADIO METEOROLOGY

- 7.1-352 551.594.7
Banerji, R. B., **Distribution-in-speed of fading of 150-kc./s. waves.** *Nature*, London, 16(4472):131, July 16, 1955. fig., 5 refs. DWB—No significant difference from normality is found in the distribution of speed of fading of 150 kc/s waves. This bears out the prediction that similarity to the normal distribution would be more pronounced for long than short waves. *Subject Heading: 1. Radio fading.—C.E.P.B.*
- 7.1-353 551.594.7:621.396.11
Bazer, J. and Karp, S. N., **Propagation of plane electromagnetic waves past a shoreline.** Y. University. Washington Square College of Arts and Science. Mathematics Research Group, Contract AF 19(122)-42, Research Report, No. EM-46, July 1952. 64 p. 4 figs., 10 refs., eqs. DWB—A mathematical treatment of the subject, particularly considering the field arising from diffraction of a plane, or ground wave, direction of which is normal and the magnetic vector parallel to the shore line of a land-sea surface. Exact integral representations of the two part boundary value problem for the time-reduced wave equation are obtained by using techniques similar to WIENER's and HOPF's. *Subject Headings: 1. Microwave propagation. 2. Wave theory.—W.N.*
- 7.1-354 551.594.7:621.396.029.6
†Duke Univ. Dept. of Physics, **Microwave Research.** Contract AF 19(604)-258, Quarterly Progress Report, July 1-Sept. 30, 1952. each of three sections repaged. Bibliog. 58 titles of publications done under the contract in section one. Ghosh, S. N.; Trambarulo, Ralph and Gordy, Walter, **Electric dipole moments of several molecules from the Stark effect.** p. 6 figs., 2 tables, 20 refs., 6 eqs. Putcha, Venkateswarlu and Mizushima, Masataka, **Possible microwave absorption in the molecules belonging to the point groups D_{2d} , V_d and T_d .** p. 3 tables, 12 refs., 20 eqs. DWB—Besides extensive bibliography of publications under contract there are reviews of work done in the following special fields: Oxygen (Zeeman effect, the breadth and frequencies); Ozone (dipole moments, trichlorogermene, trimethyl chloroethane); electric dipole moments of molecules from Stark effect and the possible microwave absorption in molecules belonging to the point groups $D_{2d} = V_d$ and T_d . *Subject Headings: 1. Microwave research. 2. Oxygen microwave absorption. 3. Ozone microwave absorption.—M.R.*
- 7.1-355 551.594.7
Griffiths, H. V., **Focusing of waves in radio reception.** *Nature*, London, 175(4465): 8-949, May 28, 1955. 2 figs. DWB—Describes occasional sudden increases for about 10 min from 1 to 20-30 mv/meter on 9700 kc/s transmission from Sofia received in S.E. England. *Subject Heading: 1. Radio wave propagation.—C.E.P.B.*
- 7.1-356 551.594.7:621.396
Jones, R. F., **Abnormal radio propagation December 3, 1954.** *Meteorological Magazine*, London, 84(997):225-226, July 1955. DWB—Abnormal propagation on 180.4 Mc/s over 7 mi in England is discussed. On Dec. 3, 1954, the field strength was 100 times normal. This is attributed to very dry air as low as 2200 ft with inversion below. *Subject Heading: Radio transmission ducts.—C.E.P.B.*
- 7.1-357 551.594.7 621.396.11:550.38
Millington, G., **Ray-path characteristics in the ionosphere.** *Institution of Electrical Engineers, Proceedings, Pt. IV*, 101(7):235-249, Aug. 1954. 14 figs., table, 12 refs., 73 eqs. LC—The paper is based on an earlier one by the author and presents an improved method of making magneto-ionic calculations that is both quicker and more accurate than the graphical construction previously given. By means of a new parameter the symmetrical cases can be studied in a simple manner and the asymmetry in the general case can be more readily examined. Propagation in the magnetic meridian plane is discussed in detail, including the phenomenon described by POEVERLEIN of a cusp at the apex to the ray path within a certain critical angle of incidence. The problem of direction-finding errors at short distances due to the lateral

deviation caused by the earth's magnetic field is treated as a perturbation of the vertical incidence case, and it is shown that the effect is likely to be large only under critical conditions that it would be difficult to obtain in practice. The paper ends with a short discussion of absorption, with special reference to the effect of the earth's magnetic field on non-deviated absorption. *Subject Headings:* 1. Radio wave propagation computations 2. Geomagnetic effects.—*Author's abstract.*

7.1-358

551.594.7:551.510.5

Rao, M. Srirama and Rao, B. Ramachandra, **Long-period fading in medium-wave radio signals.** *Nature*, London, 176(4479):459-460, Sept. 3, 1955. fig., table, 8 refs. DWB—Fading of transmissions on 1.42 Mc/s from Madras received at Waltair, 600 km distant, in May 1954 showed a period of 7 min, decreasing with time (7 h to 8 h). This agrees with calculations based on magneto-ionic theory. *Subject Headings:* 1. Ionospheric theory 2. Radio fading patterns.—*C.E.P.B.*

ACOUSTICAL PHENOMENA

See also: Sound waves (Krasil'nikova), 7.1-12.

7.1-359

551.596.1:551.596

Temchenko, P. E., **Eshche odin sluchai vidimogo rasprostraneniia zvukovoi volny pri vozdukhu.** [Another occurrence of visible propagation of sound waves in the air.] *Priroda*, Moscow, 43(11):113, Nov. 1954. DLC—Describes a case of visible propagation of a sound wave at a height of 50-100 m produced by the explosion of German bombs and observed by the author from a distance of 4-5 km during a raid of enemy bombers on the outskirts of Kerch (S. Crimea), in April 1944. Air waves, similar to waves produced in water into which an object has been dropped, emanated from the upper cupola-shaped part of a smoke column at the moment of its mushrooming and spread in concentric circles. The sound of a heavy explosion was heard at the moment when the wave reached the point where the observer stood. *Subject Headings:* 1. Explosion waves 2. Visible acoustical waves 3. Kerch, Crimea, U.S.S.R.—*A.M.P.*

PART II. SELECTIVE ANNOTATED BIBLIOGRAPHY ON SYNOPTIC METEOROLOGY OF THE ARCTIC

By: *Nina A. (Stepanova) Zikeev*

INTRODUCTORY NOTE

This bibliography presents references to the studies of atmospheric circulation in Arctic regions and to sources of information on forecasting services, weather stations, synoptic networks, and other materials which could be used in studies of synoptic conditions, circulation processes and forecasting methods in the Arctic. It includes also some general works on circulation over the globe and in the Northern Hemisphere which contain good data for the regions inside the Polar Circle. Merely aerological studies and works on sea-ice forecasting could not be covered here and only a very few papers touching these fields have been included. For comprehensive works on synoptic meteorology of the Arctic, see items 5I-14 (Mohn, Scientific results of "Fram" Expedition) and 5I-69 (meteorological observations in Soviet Arctic during Second International Polar Year), Sept. 1954 MAB. Other general works on the climate and meteorology of the Arctic will be found in the Sept. 1954 issue of MAB. Specific works on the climate or aerology of particular sectors of the Arctic will be published in subsequent bibliographies on the climate of the Arctic.

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1875

7A-1

551.513

Coffin, James Henry, *The winds of the globe: or the laws of atmospheric circulation over the surface of the earth, with a discussion and analysis of the tables and charts by Dr. Alexander Voeikov. Smithsonian Contributions to Knowledge.* Wash., D. C., vol. 20, Dec. 1875. 756 p. figs., 26 plates, plates, refs. **DLC**—This is the first summarized presentation of the wind regime generalized for the whole globe and for the Arctic region as well. Plate 2 shows the resultants of the annual direction winds in the Arctic by vectors plotted on a polar projection map. Plate 14 presents three Mercator projection world maps showing mean pressure distribution for Jan., July and the year, Arctic regions included. Plate 15 shows the percentage of winds in summer and in winter for 25 Arctic stations (inside the polar circle). Textual discussion, written by Voeikov, includes an excellent

analysis of wind regime in the Arctic region. *Subject Headings:* 1. History of Arctic meteorology 2. Polar wind map 3. Pressure distribution 4. Wind charts 5. Monographs on wind.—N.A.S.

1899

7A-2

551.582.4

†Bartholomew, John George, *Atlas of meteorology; a series of over 400 maps* . . . ed. by Alexander Buchan. Westminster, Constable and Co., 1899. 40 p., XIV p. front., 34 double map bibliog. p. V to VIII. Half-title: Physical atlas. Vol. III. DA, DWB—The most complete collection of climatic charts, showing the distribution of temperature, pressure, winds, clouds, sunshine and rainfall over the globe; also charts of storm tracks, storm frequency and weather types, anomalous situations, etc. Appended is list of meteorological services and their publications, chart showing worldwide distribution of meteorological stations, giving indication of penetration of stations into Arctic as of the turn of the century; glossary of terms, and tables of data. In addition to worldwide charts of the above elements on Mercator Projection showing conditions up to 82°N there are a number of circumpolar charts showing isotherms in the North Polar Regions for January, March, May, July, Sept. and Nov. (Plate 4); and isobars and winds for the same regions and months. (Plate 13), all based on the latest station and Polar Year expedition data. These charts show the eccentric nature of the pressure and temperature field in the Arctic Basin (cold pools in northeastern Siberia, over the solid ice region on the American side of the Pole, and in the Canadian Archipelago). The circulation schemes have been somewhat revised, on the basis of more recent data, especially from expeditions north of 83° which was the limit of observational data at the time of publication. Many of the charts are by BUCHAN. An extensive classified bibliography is included. (Same item as SI-12, Sept. 1954, MAB.) *Subject Headings:* 1. Climatic atlases 2. Arctic climatology atlases I. Buchan, Alexander (ed.).—M.R.

1904

7A-3

551.515.81(71) 551.509.21:551.555.2

Stupart, R. F., *Origin of American cold waves. Monthly Weather Review*, 32(4):176, April 1904. Also his: *The source of our cold waves. Ibid.*, 37(1):26, Jan. 1909. DLC—A brief note on the early studies of cold waves. The author states that in some seasons pronounced cold waves developing in Yukon or in the far North, never reach either Alberta or Manitoba. In other months a cold wave may develop just north of Manitoba and Ontario and the temperature in these provinces drops almost as low as near the Polar Circle. A cold wave may be expected in Manitoba about five days after it sets in over the Klondike. In his second article the author discusses some patterns of pressure distribution and accompanying temperatures in northern regions and comes to the conclusion that the persistent high pressure areas found in some seasons in the far North owe their origin to upper currents from the equator coming to earth farther north than normal. *Subject Headings:* 1. Arctic invasions 2. Cold waves in Canada 3. Pressure distribution 4. Low temperatures 5. Canadian Arctic 6. Alaska 7. Siberia.—N.A.S.

1906

7A-4

551.506.7(268.4)

Hergesell, Hugo, *Die Erforschung der freien Atmosphäre über dem Polarmeer*. [Investigations of the free atmosphere over the Arctic Ocean.] *Beiträge zur Physik der freien Atmosphäre* 2(3):96-98, 1906. table. DLC—One of the earliest investigations of the free atmosphere in the Arctic region. Sounding balloons, captive balloons and kites were used during the voyage of yacht "Princess Alice" in Arctic Ocean under sponsorship of the Prince of Monaco during July-Sept. 1906. Data on temperature gradients and inversions found by two very characteristic ascents are given in table up to 4720 and 7600 m. A layer of rapidly decreasing temperature in which humidity increased with height up to cloud cover at the top, was often found over the sea. Wind speed of 15-20 m/sec was regularly recorded at 10 km. The highest wind velocity was observed in western air streams and the lowest in eastern ones. (Same item as SE-13, May 1954, MAB.) *Subject Headings:* 1. History of Arctic meteorology 2. Temperature gradients in Arctic 3. Inversions in Arctic 4. Humidity 5. Upper air winds 6. Arctic Ocean 7. "Princess Alice" Expedition, 1906.—N.A.S.

1910

7A-5

551.513.3(98)

§†Vincent, Edouard, *On the march of barometric depressions of the Arctic polar region from the month of September 1882 to the month of August 1883. Académie Royale de Belgique, Classe des Sciences, Mémoires*, Ser. 2, Vol. 3, Brussels, 1910. 20 p. table, 9 plates, 29 refs. DLC—Previous attempts to chart cyclone tracks (e.g., Deutsche Seewarte, 1876-1885; Köppen, 1882; Van Bebber, 1891; Dunwoody, 1893 and Bartholomew's atlas, 1899) are reviewed, and new charts

each month from Sept. 1882 to Aug. 1883 based on Polar Year data prepared and presented together with monthly summaries of cyclone movements. Data from 42 stations from 50° to 82°N covering all longitudes except from 145°E to 160°W, were used in preparing daily charts on which the tracks were based. Daily synoptic charts for May 30, 1883 to June 3, 1883 show quality of such early attempts at hemispheric analysis with a limited network. Isobars are drawn for each 10 mm. Conclusion is that lows seldom cross the 80th parallel, are weak and ineffective at high latitudes, and never reach the pole. *Subject Headings: 1. Cyclone tracks 2. Pressure distribution Arctic Basin.—M.R.*

7A-6

551.515.81

Ficker, Heinrich v., *Die Ausbreitung kalter Luft in Russland und Nordasien*. [The spreading of cold air in Russia and in North Asia.] *Akademie der Wissenschaften in Wien, Mathem.-Naturw. Klasse, Sitzungsberichte*, 119:1-69, 1910. tables, 7 maps. **DLC, DWB**—Description of individual cases and classification of cold wave processes according to the area of origin. A thorough analysis of meteorological characteristics, direction and velocity of advancing cold waves. The region of origin of the cold waves is considered to be the place where the cold waves originate. Charts give the isobars of propagation. *Subject Headings: 1. Arctic air circulation 2. Cold waves 3. Soviet Union 4. Siberia.—N.A.S.*

1915

7A-7

551.513.3(47)

Mul'tanovskii, Boris Pompeevich, *Vliianie tsentrov deistviia na pogodu Evropeiskoi Rosii v techie vremia goda*. 1. *Zasukhi*. [The influence of centers of action on weather in European Russia in the warm season, Pt. 1, Drought.] *Geofizicheskii Sbornik*, Leningrad, 2(3):73-97, 1915. charts. French summary p. 96-97. **DLC**—An early study of the influence of atmospheric centers of action on weather in Europe stressing the importance of Arctic circulation types. Charts show isobars and paths of cyclones and anticyclones are analyzed. *Subject Headings: 1. Arctic centers of action 2. Cyclone tracks 3. Anticyclone tracks 4. European U.S.S.R.—N.A.S.*

1922

7A-8

551.513

§Bjerknes, J. and Solberg, H., *The life cycle of cyclones and the Polar front theory of atmospheric circulation*. *Geofysiske Publikasjoner*, 3:13-14, 1922. 12 figs., foot-refs. **DLC**—Schematic pattern of Northern Hemisphere air circulation is presented on a polar projection chart showing the circumpolar system of waves proceeding from west to east on the polar front. Some effects of Siberian anticyclones and the monsoon-like polar current are explained. *Subject Headings: 1. Polar front theory 2. Cyclones 3. Siberian anticyclone.—N.A.S.*

7A-9

551.311.181:551.515.13(268.2)

Vize, V. IU., *Die Einwirkung des Polareises im Grönländischen Meere auf die Nordatlantische zonalen Tätigkeit*. [The influence of polar ice in the Greenland Sea upon cyclonic activity in the North Atlantic.] *Annalen der Hydrographie und Maritimen Meteorologie*, 50(10):271-280, 1922. plates (1 fold.), 7 diagrs. (at end of issue). **DLC**—The author analyzes the relationship between atmospheric temperature in the fall in the Siberian ice formation centers and the ice transport in the East Greenland polar current, the influence of polar ice in the Greenland Sea on atmospheric pressure distribution during spring summer and fall including the frequency and paths of cyclones and the climatological role of the polar ice. *Subject Headings: 1. Cyclonic activity 2. Polar ice influences 3. Pressure distribution 4. Greenland Sea 5. North Atlantic 6. Siberia.—I.L.D.*

1924

7A-10

551.311.181:551.513.13(268.2)

§Vize, Vladimir IU'evich, *Polareis und atmosphärische Schwankungen*. [Polar ice and atmospheric variations.] *Geografiska Annaler*, 5(3/4):273-299, 1924. 17 figs., 15 refs., 8 eqs. **DLC**—This study aims to determine the relationship between polar ice and atmospheric processes and to ascertain the validity of H. H. HILDEBRANDSSON's hypothesis that variations in polar ice are the cause of the secular variations of mean seasonal conditions of the meteorological elements. The material used is the ice condition in the Barents Sea (Isforholdene i de Arktiske Have) and in the Greenland Sea. The relationship between ice conditions and atmospheric pressure involved the selection of years with large negative deviations from the mean ice area, and the compilation of monthly pressure charts for the North Atlantic and Europe. Years with extensive ice formation are associated with high polar pressure and a greatly weakened atmospheric circulation and years with poor ice formation with a low polar pressure and intensified atmospheric circulation. The pressure charts associated with the various ice conditions are presented. The seasonal frequency

of cyclones in the North Atlantic, the prediction of ice conditions in the Barents Sea and the relationship between ice in the Barents sea and the May and June temperatures in Europe are considered. *Subject Headings:* 1. Polar ice conditions 2. Pressure distribution 3. Cyclone frequencies 4. Barents Sea 5. North Atlantic.—*I.L.D.*

1925

7A-11

551.587(9)

*Sverdrup, H. U., *The north-polar cover of cold air. Preliminary results from the Maud expedition.* *Monthly Weather Review*, 53(11):471-475, Nov. 1925. 4 figs., 2 tables, 4 refs. **DLC**—Data of temperature and wind velocity at different altitudes obtained from kite ascents are presented and the thickness of the cold layer as dependent upon various wind directions is discussed. Graphs show the vertical distribution of temperature and the effect of wind on it up to 1000-2000 m. The thickness of the cold layer is smallest during easterly winds, when the magnitude of the inversion is greatest. In calm weather or during weak winds the temperature above the ice increases rapidly with altitude, because the air is cooled from below, and there is no exchange of mass between cold air at the ice and the warmer above. During stronger winds the cold air is intermixed and the temperature decreases up to 200 m. The cold air is then separated from the warmer by a sharp inversion. *Subject Headings:* 1. Upper air data 2. Temperature gradient over Arctic ice 3. "Polar cap" of cold air 4. "Maud" Expedition, 1918-1925.—*N.A.S.*

7A-12

551.513(9)

*Varney, Burton M. *Meteorological conditions in the Eurasian sector of the Arctic.* *Monthly Weather Review*, 53(11):475-479, Nov. 1925. fig., 8 tables, refs. **DWB**—Summary of "The airship as a means of exploration of the Arctic" by Karl Schneider; A. Berson; L. Breitfuss; M. Robitzsch; R. Surin; A. Wegener and K. Wegener. pub. by Internationalen Studiengesellschaft zur Erforschung Arctic mit dem Luftschiff, Oct. 7, 1924. Air navigation conditions in the Asiatic sector of the Arctic are analyzed. Data from 19 stations (location shown on polar map) covering various periods from 1 to 33 years are discussed. Cyclonic winds in the Arctic are analyzed and upper level wind distribution over Dickson Island is shown by table (after P. A. MOLCHANOV), and maximum wind speed over Spitzbergen in summer up to 5000 m. On the coast of northern Asia the winds are strikingly regular. This rim of the Polar Basin is an area of dominating monsoon winds. In winter the southerly winds prevail, indicating the outflow of air from the Asiatic continent. In spring the distribution of winds changes and the N and NW winds predominate. Cyclones appear to be the phenomena of the rim of the basin. Evidence is presented to show that the "Polar cap" of the cold air extends to no great height above sea level averaging a few hundred meters. It appears then that the Polar cold surface stratum functions very little in the mechanism of Polar cyclones and anticyclones. *Subject Headings:* 1. Upper air winds 2. Polar cyclones 3. Polar anticyclones 4. Arctic monsoonal circulation 5. "Polar cap" of cold air 6. Eurasian Arctic.—*N.A.S.*

7A-13

551.555.4(472)

*Vize, V. IU., *Novozemel'skaia bora.* [Bora of Novaya Zemlya.] *USSR. Tsentral'noe Gidrometeorologicheskoe Biuro, Izvestiia*, No. 5, 1925. 55 p. tables, illus., charts, graphs. **DP**—A thorough analysis of the synoptic conditions preceding and accompanying the bora, the elements or combination of elements during the bora, and the effect on human beings. Similarity of the bora in winter to the williwaw, or Taku of Alaska and in summer to the föhn or chinook, is evidenced by the drop in humidity, clearing skies, föhn clouds and strong gusty winds. Many tables giving temperature wind roses, wind chill factor, pressure and wind, etc. show an advanced attitude toward climatology not usually found in works of that date. (Same item as 3-89, March 1950, *M.A.B.*) *Subject Headings:* 1. Arctic boras 2. Novaya Zemlya 3. Soviet Arctic.—*M.R.*

1926

7A-14

551.515.7:551.311.1

†Hobbs, William Herbert, *The glacial anticyclones. The poles of the atmospheric circulation.* New York, Macmillan, 1926. 198 p. 53 figs., 3 plates, numerous refs. Author and subject indexes **DWB**—A classic work on development of the theory of glacial anticyclones which are regarded as important factors in general atmospheric circulation. The first statement of the theory was made in 1911 and from then on new material is elaborately analyzed and evidence found for advancing new concepts like the doctrine of "circumpolar cyclones" and "polar calms," certain patterns of pressure distribution in polar regions, circulation over Greenland, characteristics of glacial anticyclones and analysis of the processes in the higher portion of the circulation system. Amplified and illustrated by charts and graphs, this book gives an excellent summary of the knowledge of atmospheric processes over the Arctic up to 1926. *Subject Headings:* 1. Glacial anticyclone theory 2. Circumpolar cyclones 3. Polar calms 4. Greenland.—*N.A.S.*

7A-15 551.515(98)
Hobbs, William Herbert, **The January storms over the North Atlantic and the strophs of the Greenland anticyclone.** *Monthly Weather Review*, 54(7):286-288, July 1926. figs., 5 tables, 6 refs.
3.—Tables show relationship between Greenland strophs and Atlantic storms for Jan. 1-Feb. 15, 5 and for 1922. Author concludes that data from weather stations at sea level on the coast of Greenland are inadequate for forecasting Atlantic storms. *Subject Headings: 1. Storm forecasting 2. North Atlantic.*—M.L.R.

7A-16 551.513(98)
Mull'tanovskii, B., **Zagadka Arktiki.** [Mystery of the Arctic.] *Meteorologicheskii Vestnik*, Leningrad, 36(1):2-17, Jan. 1926. 5 figs., foot-ref. **DLC**—General discussion of synoptic conditions and the possibilities of navigation in the Arctic and North Atlantic Oceans, in ancient times, based on very early and fragmentary information. Later data provided by O. PETERSEN and E. are used for analysis of pressure distribution in winters with heavy and with light icing of the sea. Pressure charts include North Atlantic and Arctic section. *Subject Headings: 1. Synoptic conditions 2. Arctic navigation 3. Arctic synoptic charts.*—N.A.S.

7A-17 551.524.4(98)
Sverdrup, Harald Ulrik, **Air temperature in the Arctic.** *Nature*, London, 117(2954):838, Dec. 12, 1926. **DLC**—Using the results of the "Maud" Expedition the author points out that in winter the air temperature in the Arctic is always lower close to the ice cover than three hundred meters above it. The mean temperature at the surface was -28.4°C , and the vertical variation showed a decrease from the surface up to 100 m, then, a rapid rise to about 300 m, and a slower rise to -20.3°C at 1000 m. On calm days the mean temperature at the surface averages about -3°C . In windy days there was a decrease of temperature with altitude, but this affected only the lower layers. At higher altitudes an inversion is usually observed. Minimum surface temperature was about -45°C . *Subject Headings: 1. Temperature gradient over Arctic ice 2. Inversions in Arctic 3. "Maud" Expedition, 1918-1925.*—N.A.S.

7A-18 551.524.4:551.556(57)
Shostakovich, V. B., **Temperaturnaia inversiia i rol' vetra dlia klimata vostochnoi Sibiri.** [Temperature inversions and the importance of wind in the climate of eastern Siberia.] *Irkutsk gosnitsnaia i Meteorologicheskaiia Observatoriia, Trudy*, No. 2/3:81-86, 1926. 6 tables. Unchecked. During stationary anticyclonic conditions the air in the valleys of Eastern Siberia becomes supercooled and a pronounced negative lapse rate is observed in many places. The wind motion, disturbing the inversion or stratification, increases the temperature of the lower layers and prevents the formation of inversions. *Subject Headings: 1. Siberian anticyclone 2. Inversions in Arctic 3. Wind effects on surface inversions 4. Eastern Siberia.*—N.A.S.

7A-19 551.515.7:551.311.12
van Everdingen, E., **Gibt es stationäre glaziale Antizykklonen?** [Are there stationary glacial anticyclones?] *Annalen der Hydrographie und Maritimen Meteorologie, Köppen-Hefte*, 1926. p. 18-27. 7 refs. **DLC**—Arguments against the HOBBS (1910) glacial anticyclone theory, based on 1) Arctic observations which showed that the cyclones are strengthened on the border of the continental glaciers, 2) the actual fact revealed by Northern Hemisphere charts of polar regions that high pressure areas vary exceedingly in location and intensity, 3) the accumulation of snow and ice on the Greenland glacier which far exceeds that which could be obtained through "cirrus" alimantation under stationary anticyclonic conditions, 4) no possibility of condensation from rising currents at these temperatures, and with regard to continental glaciation in prehistoric times, no such theory could account for such massive accumulation of ice. Finally, it is a known fact that cyclonic circulation (äloft) usually prevails above an extremely cold surface, though pressures immediately above the surface may be higher than over surrounding areas. *Subject Headings: 1. Glacial anticyclone theory 2. Stationary anticyclones. I. Hobbs, William Herbert.*—M.R.

1927

7A-20 551.515.8:551.513(98)
Shaw, Sir William Napier, **The influence of the North Polar Region upon the meteorology of the Northern Hemisphere.** *Petermanns Geographische Mitteilungen, Ergänzungsheft*, No. 191:25-30, 1927. foot-refs. **DLC**—Generalizations on the polar front, the temperature distribution at the surface and in the upper air, the pressure distribution and variations at different levels up to 13 km, the influence of surface, mountains, latitude, glaciers, and high land masses in the Arctic and sub-Arctic general circulation and weather in polar and temperate latitudes. *Subject Headings: 1. General circulation in Arctic 2. Polar fronts 3. Upper air data.*—M.R.

figs. **DLC**—Detailed textual report of the "Meteor" expedition during July 26–Sept. 4, 1928. Weather conditions on the route are thoroughly analyzed and illustrated by charts and profiles. The narrative goes by calendar days. After Aug. 10, all pilot balloon observations from Iceland to East Greenland showed strong northern winds aloft, but this air flow was missing over West Greenland. This work provides an especially useful analysis of the characteristics of cold polar air masses in the Atlantic Arctic during late summer. *Subject Headings:* 1. "Meteor" Expedition 1928 2. Upper air winds 3. Polar air masses 4. Greenland.—*N.A.S.*

7A-34

551.515

Mische, W., *Zur Berechnung der Fortpflanzungsgeschwindigkeit der Kältewellen*. [Computation of the speed of cold wave propagation.] *Meteorologische Zeitschrift*, 47(1):22–24, 1928. fig., 5 refs., 2 eqs. **DWB**—A modification of EXNER's method is introduced and a proportionality between the speed of cold front propagation and the cooling rate is found. The coefficient of proportionality is a function of the vertical temperature gradient in the cold air body. Formation of inversions diminishes the mobility of the cold air masses, which explains, partly, the stability of the anticyclones. *Subject Headings:* 1. Cold air masses 2. Cold wave propagation 3. Anticyclones 4. Inversions.—*N.A.S.*

7A-35

551.57

Mitchell, Charles L., *Cyclones and anticyclones of the Northern Hemisphere, January to April inclusive, 1925*. *Monthly Weather Review*, 58(1):1–22, 1930. 25 figs., tables, ref. **DLC**—In this general study of the circulation in the Northern Hemisphere, using data for the first time from polar stations in Alaska, Greenland, Jan Mayen, Spitsbergen, Novaya Zemlya and the mouth of the Yenisei River, it was possible to construct charts showing the pressure distribution over the Arctic region. However the problem of the origin of the outbursts of polar air that frequently move southeastward over the Canadian Northwest Territory and northern and eastern Alaska had not been solved yet. *Subject Headings:* 1. Pressure distribution 2. Cyclone tracks 3. Cold wave sources 4. Arctic synoptic charts 5. Northern Hemisphere.—*N.A.S.*

7A-36

551.582.2:629.13(9)

*Troll, Paul, *Flugklimatologie des "Nördlichen Flugweges" und flugmeteorologische Erörterung ausgewählter Wetterlagen*. [Aeronautical climatology of the Northern air route and aeronautical presentation of selected weather situations.] *Aus dem Archiv der Deutschen Seewarte, Hamburg*, 49(3):79–98, 1930. 8 tables, 20 plates (incl. photos and fold. diagrs.). **DLC**—Brief survey of observational material and climatic data for the air route Faroe Islands–Iceland–Greenland, followed by a detailed discussion of temperature conditions over the oceans, which is linked with the ocean currents. Data on wind, precipitation, fog and storms are given for several places in Iceland and Greenland. Single storms observed by "Meteor" expedition (1928) are interpreted. *Subject Headings:* 1. Arctic flights 2. Fog 3. Storms in Arctic 4. "Meteor" Expedition, 1928 5. Iceland 6. Greenland.—*N.A.S.*

1931

7A-37

551.524

Brooks, C. E. P., *The vertical temperature gradient in the Arctic*. *Meteorological Magazine*, 66(791):267–268, Dec. 1931. 2 tables, ref. **DLC**. Review of Evgenov, N., *Les résultats des observations aérologiques raques par des levers de cerf-volant sur le navire hydrographique "Taimyr," faites en 1913–15*. (In *Observations hydrométéorologiques des expéditions hydrographiques*. Leningrad, 1931.)—Results of 44 kite ascents made in 1914 and 1915 between latitudes 73° and 78°N, longitudes 80° and 105°E have been worked up and presented in two tables, which give the temperature variations by seasons at heights up to 1500 m in steps of five hundred meters. Inversion is usually present in the lower layers and is more marked with lower surface temperature. The average depth of the inversion was about 1000 m in spring and autumn, and below 500 m in summer. *Subject Headings:* 1. Temperature gradient in Arctic 2. Inversions in Arctic 3. Soviet Arctic.—*N.A.S.*

7A-38

551.515.83

†Schwerdtfeger, W., *Zur Theorie polarer Temperatur- und Luftdruckwellen*. [Theory of polar temperature and pressure waves.] *Leipzig. Universität. Geophysikalisches Institut, Veröffentlichungen, Ser. 2*, 4(5):255–317, 1931. table, figs., 35 refs. **DLC**—An attempt is made to show the basis of the periodicity of the polar temperature and pressure variations by regarding the periodic oscillation as a process of formation of cold lows from polar air as a result of different thermal relationships between polar and temperate latitude air masses. A description of the wind and pressure conditions and boundaries of the polar cap is given. By setting up of a criterion which determines the retreat or advance of a cold air mass that adjoins warm air masses, and which takes into account

the decisive character of the temperature differences between polar and temperate air masses and calculating the amount of effective heat sources for the temperate air masses during the winter seasons it was possible to explain the period of polar oscillation. Specific instances of observed 24-hour polar temperature and pressure waves are analyzed. *Subject Headings:* 1. "Polar cap" of cold air 2. Polar pressure waves.—*I.L.D.*

1932

7A-39 551.511
Sverdrup, Harald Ulrik, *Wärmehaushalt und Austauschgrösse auf Grund der Beobachtungen der "Maud" Expedition*. [Heat economy and magnitude of exchange on the basis of "Maud" expedition observations.] *Beiträge zur Physik der Freien Atmosphäre*, 19:276-290, 1932. 5 figs., 3 tables, 12 refs., 10 eqs. **DLC**—"Maud" Expedition data of temperature in ice, on surface and at various higher levels are used for study of heat economy and the Austausch intensity in the Arctic regions. Gradients of temperature and Austausch in inversion layers are also given. *Subject Headings:* 1. Austausch in Arctic 2. Arctic heat economy 3. Temperature gradients in Arctic 4. Inversions in Arctic 5. "Maud" Expedition, 1918-1925.—*N.A.S.*

7A-40 551.509.21
§Weickmann, L., *Die Wetterlage bei der Polarfahrt des "Graf Zeppelin."* [The weather situation on the Polar flight of the "Graf Zeppelin."] *Beiträge zur Physik der Freien Atmosphäre*, 19:306-310, 1932. fig., 2 charts, ref. **DLC**—Pressure distribution in Arctic section is presented by charts for 26-29 July 1931. Weather conditions on the route are described and variations of air humidity, temperature and pressure during the flight period shown by graphs. *Subject Headings:* 1. Pressure variations 2. Arctic flights 3. "Graf Zeppelin" Expedition, 1931.—*N.A.S.*

1933

7A-41 551.515.13
Georgi, J., *Greenland as a switch for cyclones*. *Geographical Journal*, London, 81:344-345, 1933. 2 charts, 2 photos. **DLC**—Reviewing meteorological data obtained at WATKINS' base and Ice Cap stations (see Mirrlees, S. T. A., *Meteorological results of the British Arctic air route expedition 1930-1*. *Gt. Brit. Met. Off. Geophysical Memoirs*, No. 61, 1934), the author discusses the conditions in Greenland and presents two charts showing the tracks of depressions in Jan. and Feb. 1931, in the Arctic section of the Atlantic Ocean. *Subject Headings:* 1. Cyclone tracks 2. Wind 3. Greenland 4. North Atlantic.—*N.A.S.*

1934

7A-42 551.513:551.515.3
§Askani, A. N., *K voprosu o letnei tsirkuliatsii Evropeiskoi territorii Soiuzu*. [On the summer circulation over European Russia.] *Zhurnal Geofiziki*, 4(14):425-439, 1934. 10 figs., table, English summary p. 439. **DLC**—Characteristics of atmospheric circulation and transformation of polar air masses in July are given for a large area of the Eastern Hemisphere, including the Arctic region. Charts show the patterns of pressure distribution, cyclones and anticyclones and their usual tracks. Deformation fields and front locations are given on a polar projection map for the whole Northern Hemisphere. *Subject Headings:* 1. Summer circulation 2. Pressure distribution 3. Anticyclone tracks 4. Cyclone tracks 5. Polar air masses 6. Northern Hemisphere.—*N.A.S.*

7A-43 551.509.3
§Byers, Horace Robert, *The air masses of the North Pacific*. *California. Univ. Scripps Institution of Oceanography, Bulletin, Technical Series*, 3(14):311-354, 1934. 30 figs., 19 refs. **DLC**—General picture of the sources, trajectories and interactions of the air masses, and the formation, movement, and degeneration of the frontal systems is presented by the author who analyzed 600 weather maps for this study. Alaska, the Okhotsk Sea and the Kamchatka region are among source regions. *Subject Headings:* 1. Air mass sources 2. Fronts 3. Cyclone tracks 4. Okhotsk Sea 5. Kamchatka 6. North Pacific 7. Alaska.—*N.A.S.*

7A-44 551.506.7(268)
Lauscher, Friedrich, *Vom Klima der Packeiszone*. [On the climate of the pack ice zone.] *Meteorologische Zeitschrift*, 51(11):401-408, 1934. 4 tables, 10 refs. **DWB**—Review of the results of the Norwegian North Pole expedition, "Maud" 1918-1925, compiled from the publications of H. U. SVERDRUP. A concise account of the "Maud" voyage, citations of the published works and discussion of aerological data obtained by this expedition in comparison with observations from other latitudes down to 10°-15°N and up to 12 km height, are given. Frequency of various wind directions in the

pack ice zone is presented in table for four levels from surface up to 6000 m. Easterly winds prevail only up to 1000 m; higher the southwesterly winds are the most frequent. Only 5 depressions passed in the period Oct.–June during 2 years of observation. The deepest depressions appeared in the region of Bering Strait. (*Same item as 51–49, Sept. 1954, MAB.*) *Subject Headings:* 1. Upper air winds 2. Cyclones 3. “Maud” Expedition, 1918–1925 4. Pack ice zone.—N.A.S.

7A-45

551.509.21(711)

§*Meteorologische Beobachtungen in Labrador während des 2. Internationalen Polarjahrs 1932–33 und der anschließenden Jahre. [Meteorological observations in Labrador during the 2nd International Polar Year 1932–33 and the adjoining years.] *Aus dem Archiv der Deutschen Seewarte und des Marineobservatorium, 60(8), 1940.* x+41 p. 5 figs., 7 photos, tables, 16 refs. *DWB*—Data of very complete meteorological observations made at Makkovik, 55°07'N from Oct. 1932 to July 1934 and at Nain 56°33'N, from Jan. 1932 to July 1933 are presented in tables and discussed. Much attention is paid to the storms in Labrador, which are thoroughly described and illustrated by synoptic charts and a diagram showing the variations of meteorological elements during the 5-day period including the storm occurrence. The winter storms in Labrador could be compared in violence with the tropical storms. Since the temperature in winter usually does not rise above 0°C, the snow has no crust and is easily lifted by wind up to a considerable height, so that during storms the air is filled with ice needles, painfully stabbing the skin and preventing even the opening of the eyes. On the other hand, the storms act favorably by hardening the roads by means of ice crystals pressed together and collected in many places on the surface. The colder the air the harder will be the snow cover after a storm. Some hints for storm forecasting are also given. *Subject Headings:* 1. Snow storms 2. Snow storm forecasting 3. Labrador.—N.A.S.

7A-46

551.515.8

Mitchell, C. L., Complete weather-maps of the Northern Hemisphere in relation to studies of movements of major air masses. *American Geophysical Union, Transactions, 15:10–11, June 1934.* *DLC*—A valuable discussion outlining the available and missing synoptic information and a study of varying weather-situations for three months Jan.–March 1933. Tentative conclusions show the importance of knowledge of Arctic weather: 1. When pressure becomes high over practically the entire Polar Region, the usual interchange of cold and warm air mass and storm development is slowed down; 2. When pressure is high over Northern America and over Kamchatka-Okhotsk Sea area, the Pacific cyclones are likely to move northward to or over Alaska. *Subject Headings:* 1. Pressure patterns 2. Air mass movement 3. Cyclones 4. Synoptic situations.—N.A.S.

7A-47

551.555.3(988)

Petersen, H., Extrem hohe Temperaturen und Föhn in Grönland. [Extremely high temperatures and föhn in Greenland.] *Meteorologische Zeitschrift, 51:289–296, 1934.* 3 figs., 3 tables. *DLC*—Pressure distribution over the southern part of Greenland is shown on charts for cases of daily temperature rise produced by föhn or by an inflow of warm Atlantic air masses. *Subject Headings:* 1. Föhn forecasting 2. Temperature jumps 3. Pressure distribution during föhn 4. Greenland.—N.A.S.

7A-48

551.555.4:551.311.1

Wegener, Kurt, Der Schwere—Wind. [Gravity—wind.] *Annalen der Hydrographie, und Maritimen Meteorologie, 62(7):285–288, 1934.* refs. *DLC*—The phenomenon of glacial winds, glacial anticyclones or gravity winds observed on ice covered surfaces in the polar regions is described and the conditions favoring the existence of a gravity rather than a gradient wind are examined. After summarizing DEFANT's theoretical analysis of conditions necessary for the occurrence of a gravity wind the author points out that the pressure gradient on the flowing air or the observed density (gravity) difference suffice to explain the occurrence of the gravity wind. *Subject Headings:* 1. Glacial anticyclone 2. Glacier winds 3. Defant wind theory 4. Gravity winds.—I.L.D.

1935

7A-49

551.513

§Deeley, Richard Mountford, Manual of the principles of meteorology. London, C. Griffin 1935. 285 p. 134 figs. (incl. photos), 27 tables. *DLC*—Although seemingly a conventional textbook on general and synoptic meteorology, this manual approaches the subject almost entirely from the point of view of the planetary circulation patterns and its day-to-day, seasonal and secular changes. The air mass and frontal analysis concepts are not emphasized, but numerous mean monthly or actual synoptic Northern Hemisphere charts are used to illustrate conditions or changes of temperature, moisture, wind, pressure, cyclonic or anticyclonic movement, climatic changes and solar influences. Auroras, magnetic storms, glaciers and other polar phenomena figure heavily in the

Ch. 11, entitled **Atmospheric Pressure in High Latitudes**, gives a comprehensive discussion of synoptic conditions in the Arctic, based on all known synchronous data (especially British and Japanese daily and monthly mean weather charts), and discusses and illustrates various types of pressure situations by a large number of actual synoptic or mean charts for 1929-32. Solar and magnetic relationships are emphasized. Day to day pressure variations are far greater in the Arctic than would be expected from mean monthly charts. Extreme pressure range at Dublin was said to be 110 mb, and in Siberia 156 mb; on Dec. 2, 1929 (illustr.) the pressure range was 112 mb (936-1048 mb) between Iceland and Siberia. It is shown that surface temperatures alone cannot account for this latter pressure variation, and that the extremest variations in both temperature and pressure may occur when there is no solar heating at all. Conclusion is that heating must be accomplished by some energy source other than solar heat rays, and that the most important heating occurs above the level of the mountain ranges. Some of it may be in the ozone layer but the bulk must be high level warming by magnetically focused solar particles. *Subject Headings: 1. Textbooks 2. Planetary circulation 3. Pressure distribution 4. High level warming 5. Northern Hemisphere.* M.R.

7A-50

551.509.33

Duletova, T., **Sinopticheskiĭ metod dolgosrochnykh predskazaniĭ pogody**. [Synoptic method of long-range forecasting.] *Klimat i Pogoda*, No. 4:11-24, 1935. 12 charts, refs. **DLC**—Great importance of the Polar Basin as an active center of the atmosphere is emphasized by the author who has found that the outbreaks of Arctic air occur mostly in specific regions. For European weather, the polar centers in Greenland, Kara Sea and Taimyr Peninsula are determining factors. Polar anticyclones which move from NW to SE are called "normal," anticyclones moving from N to NE to SW—are called "ultra-polar." According to the Norwegian school, the "normal" anticyclones are formed in Arctic maritime air masses, and the "ultra-polar" in Arctic continental air masses. Special charts show the paths of Polar anticyclones in cold and in warm seasons. *Subject Headings: 1. Extended forecasting 2. Arctic invasions 3. Polar center of action 4. Anticyclone 5. "Ultra-polar" anticyclones.*—N.A.S.

7A-51

551.509:061

Dzerdzeevskii, Boris L'vovich, **Sluzhba pogody i ee rabota v Arktike**. [The weather service and its work in the Arctic.] *Sovetskaya Arktika*, 1(1):31-34, 1935. illus. **DLC**—General information on the object, purpose, organization and operation of the weather service in Soviet Arctic which under the name of "Department of weather service and information" became since 1935 a division of the Polar administration of the main Northern Sea Route. *Subject Headings: 1. Arctic weather services 2. Soviet Arctic.*—A.M.P.

7A-52

551.594.7 551.501.83

†Lugeon, Jean, **Sur la nécessité d'une station polaire permanente d'observations radio-météorologiques pour les services de prévision du temps suivi d'un appendice donnant la description sommaire des atmoradiographes et radiogoniographes**. [The necessity of a permanent polar station for radio-meteorological observation for weather forecasting, with an appendix giving a general description of atmoradiographs and radiogoniographs.] Warsaw, 1935. At head of title: Rzeczpospolita Polska. Państwowy Instytut Meteorologiczny. 96 p. 65 figs., 2 fold. plates, bibliog. p. 93-95. **DLC**—This carefully prepared review is the principal source of information on research of sferics as applied to weather forecasting. The appearance and regime of "atmospheric parasites" in relation to fronts and thunderstorm regions is described for the North Atlantic and is emphasized observations in the Arctic. The network established under the direction of the author reached from 30°N to 75°N (Bear Island). The effect of aurorae is shown and the detection of polar and subpolar sferics is discussed. A "terminatogram" is proposed, giving the time of sunrise and sunset for all points of the ionosphere on the whole earth. A program for a polar radiometeorological networks is outlined. The appendix presents circuit schemes, photos, a detailed description of the necessary equipment and a list of 37 papers published by the author between 1920 and 1934. (Same item as 4K-111, Nov. 1953, MAB.) *Subject Headings: 1. Sferics 2. Arctic 3. Weather forecasting from sferics 4. Radiometeorological networks.*—A.A.

7A-53

551.513(98)

§Stremousov, N. V. (Vladivostok), **K voprosu o sinopticheskikh protsessakh vostochnoi chasti Aziatskogo materika i priliegaiushchikh morei**. [Synoptic processes in the eastern part of the Asiatic continent and over the adjacent seas.] *Zhurnal Geofiziki*, 5(2):204-221, 1935. 5 figs., table, ref. **DLC**—A very comprehensive treatise on the air circulation in a large section extending from 90° to 0°E longitude and 0° to 90°N latitude. Characteristics of air masses and regions of their origin, fronts, typhoons, monsoons, cyclones and anticyclones are described in detail and shown on maps. Analysis of the interaction of atmospheric processes in time and space is summarized briefly

in five definite conclusions. *Subject Headings:* 1. Synoptic situations 2. Air masses 3. Fronts 4. Cyclones 5. Anticyclones 6. Eastern Asia.—N.A.S.

1936

7A-54

551.584

§Bachurina, A. A.; Blumina, L. I. and Petrova, L. I., *Klassifikatsiia i kharakteristika vozdukhnykh mass letom na severe evropeiskoi territorii Soiuza*. [Classification and characteristics of air masses in summer in northern European Russia.] *Zhurnal Geofiziki*, 6(2/3):201-229, 1936, 23 figs., 8 tables, eq. German summary p. 228-229. **DLC**—This is the first part of a comprehensive investigation of air masses observed in Russia, which was done in Moscow under supervision of A. I. Askani. Twelve types of air masses are identified and the circulation processes analyzed. Arctic air masses and their transformation in the northern part of European Russia are elaborately treated and illustrated by pressure charts. *Subject Headings:* 1. Arctic air masses 2. Pressure distribution 3. Synoptic situations 4. Northern U.S.S.R.—N.A.S.

7A-55

551.515

Bondar', M., *Nekotorye aerologicheskie priznaki voln kholoda v Irkutsk*. [Some aerological symptoms of cold waves in Irkutsk.] *Meteorologiya i Gidrologiya*, 1(5):69-70, May 1936. **DLC**—Investigation of the upper layers of the atmosphere were carried out by means of pilot-balloon observation, and it was found that the cold waves are preceded by certain phenomena in the atmosphere, which may be useful to know for the short-term weather forecasting. *Subject Headings:* 1. Cold wave forecasting 2. Irkutsk, Siberia.—N.A.S.

7A-56

551.515

§Bugaev, V. A. (*Tashkent*), *O sviazi tsiklonicheskikh traektorii s polozheniem arkticheskogo fronta zimoi*. [Relation of cyclonic tracks to the position of Arctic front in winter.] *Meteorologiya i Gidrologiya*, 1(8):11-18, Aug. 1936. 7 charts, 7 refs. **DLC**—The activity of the main Arctic front in winter, in northern Russia, is directed toward regenerating the polar front occlusions or the cyclones, which come from the west. Cyclogenesis could be observed on this front very rarely. The invasion of the Arctic front into the rear of a cyclone gives a new impulse to this system, reinforcing it, and the cyclone moves over to the Arctic front. Further evaluation of such depression occurs on this front and is, at certain rate, determined by the position of the Arctic front line ahead of it, since it usually moves along this line. This theory is illustrated by analysis of case histories of synoptic processes on Dec. 24-29, 1932 and on Feb. 8-10, 1934. Importance of this finding in snow storm forecasting is emphasized. *Subject Headings:* 1. Arctic front 2. Cyclone tracks 3. Cyclone regeneration 4. Snow storm forecasting 5. Winter circulation 6. Northern U.S.S.R.—N.A.S.

7A-57

551.501.7:551.507.312

§Byzov, N. P., *Opyt ispol'zovaniia sharopilotnykh nabludenii dlia prognoza pogody (v raione Karskogo moria)*. [Utilization of pilot-balloon observations for weather forecasting in Kara Sea region.] *Klimat i Pogoda*, 12(3):1-11, May/June 1936. 5 figs., 2 tables, eq. **DLC**—Certain aerological characteristics indicating further synoptic developments are established. Variation of wind with altitude over a certain territory and in a given synoptic situation may show the course of baric processes in the region of Kara Sea. Special analysis of such signs foretelling the advent of an Arctic anticyclone proceeding in N-S or NW-SE direction has been carried out. Typical synoptic charts are given covering a large portion of Russian Arctic. *Subject Headings:* 1. Local forecast studies 2. Upper air winds 3. Forecasting techniques 4. Pressure distribution 5. Anticyclones 6. Kara Sea 7. Soviet Arctic.—N.A.S.

7A-58

551.575.2(268.3

§Iakovlev, V., *Nadvodnye tumany Kol'skogo zaliva v kholodnuui polovinu goda*. [The fog over the water surface of the Kola Bay in the cold season.] *Zapiski po Gidrografii*, Leningrad, No. 1:56-68, 1936. 5 charts, 5 refs. **DLC**—The origin and frequency of low fogs are investigated. Typical synoptic situations are shown by charts. The percentage of fog occurrence at temperatures lower than -10°C is given by months. *Subject Headings:* 1. Fog 2. Synoptic situations 3. Kola Bay.—N.A.S.

7A-59

551.515.8

Li, Liang-Chi (?), *Die Kälteeinbrüche in Ostasien*. [Cold intrusions in Eastern Asia.] *Meteorologische Zeitschrift*, 53(2):74-76, 1936. 9 refs. article signed Sjan-zi Li. **DWB**—The Northern Ice Sea region, between 30° and 90°E longitude, and Eastern Siberia, between the 100° and 150°E are identified as the source regions of the cold intrusions. Invading cold air masses are classified

the further process of their expansion is discussed along the lines of: 1) direction and distance of expansion; 2) form of expansion; 3) the cold wave as a front; 4) speed of propagation and the number of cold intrusions; 5) precipitation and weather situation. *Subject Headings: 1. Arctic intrusions. 2. Cold wave propagation 3. Synoptic situations 4. Arctic Ocean 5. Eastern Siberia.*—N.A.S.

7A-60

551.5:629.12(98)

Selezneva, E. S., *Aerosinopticheskie usloviia pereleta cherez severnyi polius*. [Aerosynoptic conditions of the flight over the North Pole.] *Meteorologiya i Gidrologiya*, No. 3:21-26, March 1936. 10 figs., tables, 7 refs. **DLC**—Analysis of weather conditions along the path planned by LEVANEVSKII for his flight over the North Pole, and determination of the April-May period as the most favorable for the flight. LEVANEVSKII made the flight but never returned, and no trace of him has been found. *Subject Headings: 1. Polar flights 2. Arctic weather.*—N.A.S.

7A-61

551.524.36(98)

Steinhaus, F., *Zur Häufigkeitsverteilung der Extremtemperaturen im Polargebiet*. [On the frequency of extreme temperatures in the Polar Region.] *Meteorologische Zeitschrift*, 53(11):430-433, 1936. 1 fig., 2 tables. **DWB**—Data on minimum temperatures of two polar stations—Jakobshavn in Greenland and Obdorsk in Russia—are discussed. Two frequency maxima of minimum temperatures have been noticed in Obdorsk in December: one at -33° , to -30° and the second at -25° , to -20°C . This is associated with the frequency of two characteristic air masses: the cold continental polar air, and the advective air. *Subject Headings: 1. Minimum temperature frequencies 2. Polar air masses 3. Obdorsk, U.S.S.R.*—N.A.S.

7A-62

551.587

Wexler, Harry, *Cooling in the lower atmosphere and the structure of polar continental air*. *Monthly Weather Review*, 64:122-136, April 1936. 9 figs., 8 tables, 37 refs., 12 forms. **DWB**—A thorough discussion of the problem of cooling with mathematical analysis. Temperature soundings made in Norway, Alaska, and North Dakota are presented graphically. Magnitude of the inversions, rate of decrease of free-air temperatures and the effect of subsidence are taken up and the thermal structure of Polar Maritime and Polar Continental Air up to 16 km is presented in table. *Subject Headings: 1. Polar air masses 2. Inversions in Arctic 3. Temperature lapse rates 4. Norway 5. Alaska.*—N.A.S.

1937

7A-63

551.594.7:621.396:551.515.4(268)

Arkhangel'skii, B. F., *Rasprostranenie radiovoln v severnykh shirotakh*. [Propagation of radio waves in northern latitudes.] *Leningrad. Arkticheskiĭ Nauchno-issledovatel'skii Institut. Izvestiya*, 78:17-20, 1937. 5 figs. English summary p. 20. **DLC**—Report on observations made in June 1932/33 on Franz-Josef Land, measuring the intensity of radio waves in the diapason 20-2000 m, transmitted from stations with a distance from 2500 to 10,000 km. The influence of ultraviolet and corpuscular solar radiation during the polar day and night is discussed. The relation of sferics to the main regions of thunderstorm activity, presented on a map, is shown. (Same item as 51-61, pt. 1954, M.A.B.) *Subject Headings: 1. Radio wave propagation 2. Sferics 3. Thunderstorms 4. Franz-Josef Land.*—A.A.

7A-64

551.524.7(98)

Bushev, I., *Neperiodicheskie kolebaniia temperatury troposfery v Arktike*. [Nonperiodical variations of troposphere temperature in the Arctic.] *Meteorologiya i Gidrologiya*, No. 9:79-82, pt. 1937. 5 figs., table, 4 refs. **DLC**—Analysis of radiosonde data obtained at two stations: Jackson Island and Cape Zhelaniia in June 1935 has been made and temperature variations during the month are presented by isopleths for heights up to 10 km. The effect of Arctic invasions on temperature in the stratosphere are opposite to those in troposphere, which is explained by the cooling of the stratospheric air masses when they are forced upwards by the warm intrusions from below. *Subject Headings: 1. Arctic invasions 2. Temperature gradients in Arctic 3. Stratospheric temperatures 4. Jackson Island 5. Cape Zhelaniia, U.S.S.R.*—N.A.S.

7A-65

551.513

Diubiuk, A. F., *Poliusy i obshchaia tsirkuliatsiia atmosfery*. [The poles and the general circulation of the atmosphere.] *Meteorologiya i Gidrologiya*, No. 6:46-51, June 1937. 4 figs., ref. **DLC**—The author presents an outline of general atmospheric circulation based on theories of BERNARD, BERGERON and others, and describes the circulation processes at the North Pole. *Subject Headings: 1. Circulation theories 2. North Pole circulation.*—C. Klackho.

7A-66

551.509.2

§Klemin, A., *Sinopticheskie uslovia i meteorologicheskoe obsluzhivanie Severnoi Ekspeditsii* [Synoptic conditions and meteorological servicing of the polar expedition.] *Meteorologiya i Gidrologiya*, No. 6:23-40, 1937. 12 figs., charts. DLC—The paper describes and shows on charts the synoptic situations from March to June 16, 1937, and explains their influence upon the time table of the expedition. He also gives an account of the very satisfactory organization of the meteorological service at the disposal of the expedition, which greatly contributed to a successful fulfillment of its plans. *Subject Headings*: 1. Synoptic situations 2. Arctic weather services 3. Arctic expedition. —C. Klachko.

7A-67

551.55

Krichak, O., O sviazi dreifa stantsii "Severnyi Polius" s vetrovym rezhimom v tsentral'noi Arktike. [The relation between the drift of the "North Pole" drifting station and wind regime in the Central Arctic.] *Meteorologiya i Gidrologiya*, Moscow, 3(6):99-100, June 1937. fig. DLC—Observations of drifting station "North Pole" in Central Arctic from May 21-June 17 showed two completely different periods of meteorological conditions, as connected with the direction of drift. While drifting southward along the Greenwich meridian (89°40'-88°40'N) in a general SSE direction from May 21-June 5, northern air currents were prevalent. Anticyclonic formations were observed over extreme north of North America and Greenland, i.e., west from drifting station and moving along northern coast of Eurasia. During the second period (June 5-17), drifting ice suddenly changed its course to the west toward the Greenwich meridian. Anticyclones were located to the south of drifting station and moving easterly and northerly from the station. This period was characterized by western air currents. The above observations and investigation of wind regime in relation to the pressure gradient under conditions when surface friction was insignificant while Coriolis force was great enough to be taken into consideration, indicate dependence of drift upon wind. These conditions permit forecasting, reasonably well, the direction of ice drift for the ensuing periods. *Subject Headings*: 1. Wind regime 2. Anticyclones 3. Central Arctic 4. Papanin Expedition, 1937-1938.—S.A.

7A-68

551.513.7 551.524.3

†Loewe, F., A period of warm winters in western Greenland and the temperature see-saw between western Greenland and Central Europe. *Royal Meteorological Society, Quarterly Journal*, 63:365-372, 1937. fig., 2 tables, 22 refs. Discussion on p. 371-372. DLC—Particulars are given regarding the big rise of winter temperatures in Greenland and its more oceanic climate during the last fifteen years. Observations covering sixty years show a marked negative correlation of simultaneous temperatures between western Greenland and the regions around the Baltic Sea. This temperature see-saw can be explained by the simultaneous pressure anomalies over Iceland and the Norwegian Sea and the changes of the meridional pressure gradient over the northern Atlantic. *Subject Headings*: 1. Winter circulation 2. Pressure anomalies 3. Greenland 4. Iceland.—*Author's abstract*.

7A-69

551.513(98)

§Pchelko, I., Stantsiia "Poo"—na sinopticheskoi karte. [Station "Poo"—on synoptic chart.] *Meteorologiya i Gidrologiya*, No. 6:97-98, June 1937. 2 figs. DLC—The paper analyzes meteorological data recorded in May and June 1937 by the winter station (*Ibid.*, 6:93-96, 1937) and presents 2 synoptic charts on which North Pole data have been plotted. The picture thus obtained proves that, contrary to the old notion of permanent stationary high in the region of the North Pole, the general circulation does not by-pass it, and that the passage of fronts over the region, as elsewhere, produces changes in all meteorological elements. *Subject Headings*: 1. North Pole weather 2. Cyclones 3. Papanin Expedition, 1937-1938.—C. Klachko.

7A-70

551.582(985)

†*Rizantseva, Zinaida Aleksandrovna, *Klimat Novosibirskikh ostrovov i del'ty reki Leny*. [The climate of the New Siberian Islands and the delta of the Lena River.] *Leningrad. Arkhticheskiy Nauchno-issledovatel'skii Institut, Trudy*, 102(6) 1937. 78 p. 13 figs., 46+12 tables, 36 refs. English summary p. 78. DLC—Extensive survey taking up all climatic elements using full scope of data available for this region. Special attention is paid to pressure and wind conditions. The position of the axis of low pressure trough is defined. *Subject Headings*: 1. Pressure distribution 2. Wind regime 3. New Siberian Islands. I. Tikhomirov, E. N. (ed.).—N.A.S.

7A-71

551.515.11

Scherhag, R., Die aerologische Entwicklungsbedingungen einer Labrador-Sturmzyklone. [The aerological conditions for development of a Labrador-storm cyclone.] *Annalen der Hydrographie und Maritimen Meteorologie*, 65(2):90-92, 1937. DLC—Proceeding from the statement that all

North Atlantic cyclones originate in the border area between the Gulf Stream and Labrador current, the author assumes further that almost all the vortex storms start at the Gulf Stream frontal zone and tries to find proof for existence of sharp differences in temperature and pressure aloft in this area. Discussing WILLETT's aerological data, he proves that the great temperature differences found in these areas exist throughout the whole troposphere. He finds also that the Gulf Stream plays only an indirect role in the origin of storm cyclones and that the contact of the cold Canadian air with the warm Gulf waters does not start the cyclogenesis. This is proved by the fact that the formation of a storm depression in many cases occurs over the continent and even over the cold surface of Labrador, and the Labrador current. *Subject Headings: 1. Cyclogenesis 2. Storms in Arctic 3. Temperature gradients in Arctic 4. Labrador 5. North Atlantic.—N.A.S.*

7A-72 551.509.58:551.311.1
Vize, V. Iu., *Sovremennoe sostoianie voprosa o ledovykh prognozakh*. [Present state of the problem of ice forecasting.] *Problemy Arktiki*, 1:67-80, 1937. 4 figs., 5 refs. English summary p. 78-80. **DLC**—Relationships between meteorological factors and ice conditions, which can be used in ice forecasting are discussed. Pressure distribution pattern in Jan.-March, characteristic of a subsequent favorable ice-season is given on chart showing the mean isobars for a series of favorable ice-years. Another chart shows the pressure distribution preceding difficult ice-seasons. *Subject Headings: 1. Sea ice forecasting 2. Pressure distribution 3. Soviet Arctic.—N.A.S.*

7A-73 551.515.11
Wexler, Harry, *Formation of polar anticyclones*. *Monthly Weather Review*, 65(6):229-236, 1937. 7 figs., table, 25 forms, 2 refs. **DLC**—A theoretical study of the mechanism governing the compensatory inflow from adjacent regions into an anticyclone, and its distribution with height. Transformation of polar maritime air into continental and the structure of the wedge of polar continental air are shown by diagrams. It has been found that the increase in surface pressure results from convergence in the air above the lower cooled air. *Subject Heading: 1. Polar anticyclones.—N.A.S.*

1938

7A-74 551.524.4
Briantseva, A. S.; Glebova, M. Ia. and Shcherbakova, E. Ia., *Temperaturnye kharakteristiki Severo-Skandinavskogo vozdeistviia*. [Temperature characteristics of the North-Scandinavia climatic influence.] *Leningrad. Glavnaia Geofizicheskaiia Observatoriia, Trudy*, (16):90-104, 1938. 10 figs., 8 tables, 7 refs. German summary p. 103-104. **DLC**—Analysis of Arctic invasions in European Russia occurring in the rear of a cyclone situated over the basins of Pechora, Ob' and Yenisei rivers. According to pressure distribution the authors discern four types of invasions which are illustrated by synoptic charts. *Subject Headings: 1. Arctic invasions 2. Pressure distribution 3. Synoptic situations 4. European U.S.S.R.—N.A.S.*

7A-75 551.515.8(98)
Butkova, O. A., *Izmeneniia v tipakh pogody morskoi arkticheskoi vozdukhnoi massy v mae na puti ot Kol'skogo poluostrova k Moscv*. [Changes in types of weather of marine arctic air mass along its route from Kola Peninsula to Moscow in May.] *Akademiia Nauk SSSR. Institut Geografii, Trudy*, 28:146-152, 1938. 5 tables, 2 refs. **DLC**—Analysis of weather types in maritime Arctic air masses has been made for 6 stations. The author came to the conclusion that a great variety of weather conditions is found in this air mass ranging from very difficult and hard ones to almost perfectly comfortable. *Subject Headings: 1. Arctic air masses 2. Arctic weather 3. Northern U.S.S.R.—N.A.S.*

7A-76 551.510:551.582:551.587(985)
Guterman, I. G., *Osobennosti stroeniia atmosfery nad poliarnymi oblastiami*. [Structure of the atmosphere over the Arctic regions.] *Leningrad. Arkticheskii Nauchno-issledovatel'skii Institut, Trudy*, Vol. 122, 1938. 79 p. 23 figs., 43 tables, 31 refs. **DLC**—Study based on 220 aerological observations made in 1932-35 on Franz Josef Land, 97 of which reached also the stratosphere (up to 20 km). The author briefly characterizes the climatic conditions and in detail the vertical distribution of temperature and pressure (turbulent mixing layer, 0°C isotherms, inversion, lapse rate, annual course and variability, interdiurnal variability). A whole chapter is devoted to the tropopause, annual variation of height and temperature, relation of temperature to height and of the height to surface pressure. Classification of the vertical structure proposed on the basis of tephigrams. *Same item as 5D-234, April 1954, MAB.* *Subject Headings: 1. Tropopause in Arctic 2. Aerological studies 3. Inversions in Arctic 4. Temperature gradients in Arctic 5. Franz Josef Land.—N.A.S.*

7A-77

551.524.7(98)

*Guterman, I. G. (Moscow), *Temperaturnye usloviia po vertikali nad Zemlei Frantsa Iosifa* [Vertical distribution of temperature over Franz Josef Land.] *Meteorologiya i Gidrologiya*, No. 6:56-65, June 1938. 2 figs., 11 tables. DLC—The paper presents an analysis of random material obtained from 178 radiosonde ascents and 22 kite ascents. It contains some data on inversion temperature gradients, extreme values of temperature aloft and on the range of temperature variations with altitude. Arctic circulation and its relation to zonal and meridional exchange is discussed. (Same item as 5D-94, April 1954, MAB.) Subject Headings: 1. Atmospheric structure 2. Meridional exchange 3. Inversions in Arctic 4. Temperature gradients in Arctic 5. Franz Josef Land.—C. Klachko.

7A-78

551.509.21:551.515.7(98)

§Haurwitz, B. and Noble, J. R. H., *Maps of the pressure distribution in the middle troposphere applied to polar anticyclones*. *American Meteorological Society, Bulletin*, 19(3):107-111, March 1938. 6 figs., 5 refs. DLC—Interdiurnal variations of pressure in the higher and lower regions of the atmosphere are studied and samples of pressure distribution at surface and at 5000 and 14,000 ft are given. A rapid variation of the pressure pattern with altitude is characteristic under winter conditions. Rapidly moving polar anticyclones of North America are of a shallow nature and are due to a concentration of cold dense air near the ground. Subject Headings: 1. Pressure distribution 2. Polar anticyclones 3. Upper air data 4. North America.—N.A.S.

7A-79

551.524.4:551.506.7(98)(47)

*Kondyryn, V. V., *Temperatura v nizhnikh sloiakh atmosfery po dannym zmelkovykh i samoletnykh pod'emov na myse Shmidta v 1935-1936 godakh*. [Temperature in the lower layers of the atmosphere according to kite and aeroplane soundings at the polar station on Cape Schmidt in 1935-1936.] *Problemy Arktiki*, Leningrad, No. 2:75-88, 1938. 4 figs., 20 tables. English summary p. 87. DLC—Fifty-five soundings were made at the station located at 68°55'N, 180°35'E. Inversions of three types were noticed: 1) beginning from the very surface, 2) beginning from a height of 200 m and 3) from a height of 500 m. Subject Headings: 1. Inversions in Arctic 2. Aerological studies 3. Cape Schmidt, Soviet Arctic.—N.A.S.

7A-80

551.509.21:551.578.46

§Matasov, M. I., *Snegovoi pokrov v Iakutskoi ASSR*. [Snow cover in Yakut A.S.S.R.] *Problemy Arktiki*, Leningrad, No. 5/6:39-50, 1938. 6 charts. DLC—Synoptic conditions determining snowfall, snow accumulation and snow cover melting in Yakutia are discussed and typical situations presented by charts. Subject Headings: 1. Synoptic situations 2. Snow cover 3. Yakutia.—N.A.S.

7A-81

551.509.58:551.311.1

Nazarov, V. S., *Sovremennoe sostoianie ledovykh prognozov*. [The present state of ice forecasting.] *Sovetskaya Arktika*, Leningrad, No. 2:36-46, 1938. DLC—A review of methods in ice forecasting used in 1938. ZUBOV emphasized the effect of North Cape Stream, which brings the warm water into the Barents and Kara Sea. VIZE considered the Iceland pressure minimum motions as the most important factor in determining the ice conditions in those seas. NAZAROV stressed the importance of air flows and density of sea water. A. BURKE developed a theory of cyclic fluctuations in sea ice conditions. Many attempts have been made to establish such cycles but no positive results have been achieved as yet. Subject Headings: 1. Sea ice forecasting 2. Iceland pressure minimum 3. Forecasting techniques 4. Literature reviews.—N.A.S.

7A-82

551.501.7:551.501.9

Shpakovskii, I. N., *Postanovka aerologicheskikh rabot v Sovetskom sektore Arktiki*. [Techniques of aerological investigation in the Soviet sector of the Arctic.] *Problemy Arktiki*, Leningrad, 5/6:125-130, 1938. map, 4 tables. DLC—Development of aerological network in the Russian Arctic is described and shown on map. The problems which have to be solved by means of aerological observations are outlined and the required distance between the observation points is established as 500-600 km. Aerological material can be most effectively used in analyzing certain types of synoptic processes. The study of air circulation in the Arctic requires a statistic investigation of vertical distribution of meteorological elements over this region, but the available material is not sufficient since the maximum soundings do not exceed 66 cases in June and 31 in July. Subject Headings: 1. Aerological networks 2. Synoptic situations 3. Soviet Arctic.—N.A.S.

7A-83

551.589.5

§†Tauber, G. M. (Moscow), *K kharakteristike vozdushnykh mass nad o. Dikson*. [Characteristics of air masses over Dickson Island.] *Meteorologiya i Gidrologiya*, No. 9/10:88-105, 1938.

charts, 8 tables. **DLC**—A comprehensive study of atmospheric circulation based on 95 radiosonde observations made in 1935–37, on weather map analysis and on statistical data for air masses. Circulation conditions during invasions of the main air masses, temperature gradients and inversions are described. Various processes are illustrated by synoptic charts. *Subject Headings:* 1. Air mass frequencies 2. Temperature gradients in Arctic 3. Inversions in Arctic 4. Synoptic situations 5. Statistical studies 6. Dickson Island 7. Soviet Arctic seas.—*N.A.S.*

7A-84 551.5:908 (98)
Tikhomirov, E. I., *Geofizicheskie issledovaniia v Sovetskoĭ Arktike*. [Geophysical investigations in Soviet Arctic.] *Problemy Arktiki*, No. 3:43–69, 1938. 2 charts, 10 tables. **DLC**—Chronological survey of progress in Arctic investigations summarizing some results of aerological data: characteristics of Arctic air masses by seasons, the height of the stratosphere, inversions and advection of warm air. *Subject Headings:* 1. History of Arctic meteorology 2. Arctic air masses 3. Stratosphere 4. Inversions in Arctic 5. Warm advection 6. Soviet Arctic.—*N.A.S.*

7A-85 551.509.31
Dzherdzeevskii, B. L., *Sinopticheskie tipy blagopriiatnykh i neblagopriiatnykh v ledovom otnošenii navigatsionnykh periodov u p.'o. Taimyr*. [Synoptic types of navigation in Taimyr Peninsula favorable and unfavorable (in regard to ice conditions).] *Meteorologiya i Gidrologiya*, 1939, 2:19–30, 1939. 8 figs., 3 tables, 6 refs. **DLC**—In view of the fact that effective displacement of ice takes place under the influence of air flows of sufficient strength and continuity, this study is confined to the field of short range forecasting and to the establishment of synoptic types of weather and winds. The charts—3 of favorable and 3 of the unfavorable type—are drawn on the basis of synoptic processes of 502 days from a total of 644 days (July, Aug. and Sept., 1932–1938). A comparison of the charts with the actual situations shown on tables giving the distribution of the various types by individual years and months is then presented and discussed. It is shown that with the exception of the year 1937 the number of favorable types prevails, especially in Aug. and Sept. These are the actual navigation period in this remote area. *Subject Headings:* 1. Sea ice forecasting. 2. Synoptic situations.—*A.M.P.*

7A-86 551.582 (985)
Leonteva, E. A. and Ivanov, V. K., *Klimaticheskaia kharakteristika Ob'-Eniseiskogo raiona. Klimatic characteristics of the Ob'-Enisei region*. [Leningrad. *Arkticheskiĭ Nauchno-issledovatel'skii Institut, Trudy*, 133:1–183, 1939. figs., tables, refs. **DLC**—Characteristics of air pressure distribution and atmospheric circulation over large Arctic area between 60° and 90°E meridians, Siberia, are found in Chapters 2 and 3 of this study. *Subject Headings:* 1. Pressure distribution 2. Arctic air circulation 3. Siberia, U.S.S.R.—*N.A.S.*

7A-87 551.311.181:551.513 (98)
Nazarov, V. and Belinskii, N., *Problemy ledovykh prognozov arkticheskikh morei*. [Problems of ice forecasting in the Arctic seas.] *Problemy Arktiki*, No. 2:9–26, 1939. 5 figs., 4 tables, 9 refs. Also: Somov, M. M., *Po povodu stat'i V. Nazarova i N. Belinskogo "Problemy. . ."* [On Nazarov's and N. Belinskii's article "Problems. . ."] *Ibid.*, No. 5:46–49, 1939. 2 refs. **DLC**—Working hypotheses explaining the relationship between the circulation processes of the atmosphere and those of the hydrosphere are discussed. The intensity of atmospheric circulation is interpreted as a function of cyclonic activity, which has been calculated for the Northern Hemisphere for 1933, 1935–37. The results are presented as the sums of intensity for Feb. and Sept. 7. Polar charts of pressure distribution are given for the same months. Somov finds that the change in pressure over the Polar Basin will result in the following changes of water circulation between the Polar Basin and the Atlantic Ocean: 1) when pressure decreases over the Polar Basin the inflow of Atlantic water is weakened and the surface runoff is reinforced. This proves that the hypothesis of NAZAROV and BELINSKII is wrong. The general conclusion is positive for the purely theoretical values of analyzed hypotheses, but negative for the practical application to long range ice forecasting. *Subject Headings:* 1. Sea ice forecasting 2. Pressure distribution 3. Arctic circulation.—*N.A.S.*

7A-88 551.515.81:523.74
Rubashev, B., *O vliianii kolebaniĭ solnechnoi arktivnosti na Arkticheskiĭ tsentr deĭstviia troytsy*. [Influence of variations in solar activity on the Arctic centers of action in the troposphere.] *Meteorologiya i Gidrologiya*, No. 10–11:181–185, Oct./Nov. 1939. 5 figs., 6 refs. **DLC**—The article contains a graphic presentation of the relation between solar impulses and invasions of Arctic air; analysis of the graphs indicates a definite dependence of Arctic invasions from rhythmic processes of the sun. *Subject Headings:* 1. Arctic centers of action 2. Arctic invasions.—*C. Klachko*.

7A-89

551.542:551.311

Somov, M. M., *O postroenii skhemy l'dov v poliarnom basseine*. [Compilation of a schematic pattern of ice distribution in Polar Basin.] *Problemy Arktiki*, No. 5:25-32, 1939. 8 figs., 13 res. **DLC**—Comparing the distribution and drifting of sea ice with air pressure conditions the author gives polar maps of mean pressure for Oct.–March and April–Sept. based on data from 1935–1938 observations. *Subject Headings: 1. Arctic synoptic charts.*—N.A.S.

7A-90

551.542:551.513(94)

*Stone, Robert G., *The lapse rates in different air masses at Dickson Island, West-Siberia (73.5°N, 80°E)*. *American Meteorological Society, Bulletin*, 20(8):376-378, 1939. 2 tables. **DLC**—Results of 95 successful radiosonde ascents with MOLCHANOV apparatus, 1935-37, are summarized according to month, position with respect to fronts, air masses and relation to surface temperature. Mean lapse rates in °C/100 m of each air mass between fixed levels are given for each season up to 6000-7000 m computed from data of 95 ascents made in 1935-36-37. The bases of inversions were mostly between 150 and 600 m and the tops between 1000 and 1400 m. *Subject Headings: 1. Pressure distribution 2. Polar anticyclones 3. Lapse rates 4. Inversions in Arctic 5. North America*—N.A.S.

7A-91

551.553(92)

Vize, V. Iu., *O kolebaniakh vetrovogo rezhima v Arktike*. [Variations of the wind regime in the Arctic.] *Problemy Arktiki*, No. 4:30-37, 1939. map, diagrs. **DLC**—Since the warming up of the Arctic, the increased cyclonic activity in the higher latitudes has resulted in greater frequency of winds having a westerly component. *Subject Headings: 1. Wind regime 2. Cyclonic activity 3. Arctic.*—*Arctic Bibliography*, No. 18822.

1940

7A-92

551.515.8

Bugaev, V. A. and Dzhordzhio, V. A. (Tashkent), *Klassifikatsiia vozdukhnykh mass SSSR*. [Classification of air masses of the U.S.S.R.] *Meteorologiya i Gidrologiya*, No. 12:33-45, 1940. 3 figs., 6 refs. German summary p. 44-45. **DLC**—A detailed classification of air masses over Russia for the cold and warm season is presented and illustrated by two Mercator maps showing fronts, air masses, pressure distribution and wind vectors. The work is based on Khromov's pattern of main frontal zones in the Northern Hemisphere. Two types of Arctic air are discerned: 1. Arctic air of the Siberian section of Arctic region— A_s , which was formerly called the Continental Arctic air, and 2. Arctic air of the Greenland sea— A_g , formerly the Maritime Arctic air. The location of Arctic fronts and Arctic air masses is shown by Fig. 2, for winter. The origin of Arctic air and the advance of Arctic invasions are discussed. *Subject Headings: 1. Air mass classification 2. Arctic fronts 3. Arctic invasions.*—N.A.S.

7A-93

551.515.8

†§Blüthgen, Joachim, *Geographie der winterlichen Kaltluftinbrüche in Europa*. [Geography of the winter cold air intrusions in Europe.] *Aus dem Archiv der Deutschen Seewarte und das Marine-observatoriums*, Hamburg, 60(6/7):5-182, 1940. 101 figs., numerous refs. (p. 170-182). **DWB**—Extensive treatise on the nature of cold air invasions from the Polar region into European countries. Methods of analysis and relevant conceptions are discussed. The author gives a detailed classification of the cold air invasions according to the place of origin and the tracks of the invading cold air masses. Duration of cold air masses, their degeneration and regeneration, annual march of cold invasions and a classification of winters is elaborately discussed and richly illustrated by synoptic charts, pressure distribution patterns, tracks of invasions, etc. Four climatic regions are outlined according to cold air mass frequencies; distance from the sources of cold invasions, and conditions of formation or maintenance of the cold air. These regions are: 1) The Northwestern—including Iceland, the sea over the Faroe Islands to SW—Norway, Iceland, Britain and North Sea; 2) Scandinavian region—including Scandinavia and Lapland; 3) Northeastern region—from Finland through Baltic Sea up to East Poland and 4) Middle Europe. *Subject Headings: 1. Arctic invasions 2. Polar air masses 3. Cold wave classification 4. Northern Europe.*—N.A.S.

7A-94

551.515.81

§Carpenter, Archer B., *Occlusions on the Alaskan Coast*. *American Meteorological Society, Bulletin*, 21(8):327-332, Oct. 1940. 4 charts. **DWB**—Peculiarities of storms crossing this coast into western Canada are studied on the basis of analysis of weather maps for the past few years, especially for the winter season of 1938-39 covering the entire North Pacific area. The structure and behavior of two typical synoptic situations, one in fall and another in late winter, are discussed.

illustrated by charts. *Subject Headings:* 1. Occlusions 2. Storms in Arctic 3. Cyclone tracks
Alaska 5. Canada.—N.A.S.

7A-95 551.515.81
Chubukov, L. A., *Pogoda leta 1938g. na Evropeiskoi territorii soiuza*. [The weather conditions
summer 1938 in European Russia.] *Meteorologiya i Gidrologiya*, No. 7:17-23, 1940. 7 figs., 2
res. **DLC**—Analyzing the atmospheric processes during the extremely dry summer of 1938,
author has found that the main feature of atmospheric circulation during this season was a
dynamic and permanently regenerating anticyclone over European Russia. This anticyclone has
been linked with frequent and intense outbreaks of cold air from the eastern Arctic regions coming
in the Taimyr Peninsula and western Siberia. These cold masses build up a dynamic barrier
of the western streams, cutting off the main source of moisture. *Subject Headings:* 1. Arctic in-
versions 2. Anticyclones 3. Pressure distribution 4. European U.S.S.R.—N.A.S.

7A-96 551.5:06
XX let Arkticheskogo instituta. [20 years of the Arctic Institute.] *Problemy Arktiki*, No.
—22, 1940. **DLC**—A long account of geophysical and geological work of the Arctic Institute
the Revolution. The meteorological (aerological and synoptic) research and investigations
are summarized in some detail. Hydrological work included long range forecasting of ice conditions
in Arctic. Expeditions conducted under Arctic Institute sponsorship made detailed meteorological
observations and these were summarized and published by the Institute. Joint work since 1938
of Glavsevmorput' is outlined. *Subject Headings:* 1. Literature reviews 2. History of Arctic
meteorology. I. Leningrad. Arkticheskii Nauchno-Issledovatel'skii Institut.—M.R.

7A-97 551.513
Girs, A. A., *Rol' mussonnogo perenosa tepla v potepnenii Arktiki*. [Role of monsoonal transfer
of heat on warming up of Arctic.] *Problemy Arktiki*, 11:39-45, 1940. 3 maps, 5 refs. **DLC**—
atmospheric circulation processes effecting the rapid warming of Arctic region are analyzed. Syn-
optic charts present the most characteristic situations in Jan. of 1936 and 1937. Stability of air
circulation in Jan. 1937 is regarded as the main factor promoting the heat transfer to the Arctic.
Subject Headings: 1. Arctic monsoonal circulation 2. Synoptic situations.—N.A.S.

7A-98 551.509.53(98)
Gusev, A. M., *O prognozakh temperatury po trasse Severnogo Morskogo Puti v svyazi s prog-
nozom ledovosti*. [Temperature forecasts along the Northern Sea Route in connection with the
forecast of ice conditions.] *Akademiia Nauk SSSR, Izvestiia, Ser. Geogr. i Geof.*, (2):239-252,
1940. 7 figs., 4 tables, 9 refs. English summary p. 251-252. **DLC**—Analysis of present methods of
forecasting ice conditions in Soviet Arctic seas, and forecasting of air temperatures, closely related
with it. Maps by SHULEIKIN of mean annual isanomals data in °C for Jan. 1939 for northern
Soviet Russia; isotherms for the same period for the whole Arctic Basin (ranging from 0° to
10°C) and pressure map for the Arctic basin for Dec. 1938 (995-1030 mb) show that isoanomals
coincide with isobars in space but are displaced in time for one and half months. Forecasting
mean air temperature based on V. SHULEIKIN's theory of monsoons (heat transfer from sea to
by air currents) is supported by tables which show mean air temperature calculations for Feb.,
March and April in 10 places. *Subject Headings:* 1. Temperature forecasting 2. Shuleikin monsoon
theory 3. Arctic synoptic charts 4. Arctic Basin.—S.A.

7A-99 551.582:551.542(268)(47)
Karelin, D. B., *Raspredelenie davleniia nad severnoi poliarnoi oblast'iu*. [Distribution of
pressure over the northern polar area.] *Problemy Arktiki*, No. 12:51-61, 1940. 13 figs., 4 tables,
DLC—Considering the accumulation of new observational material obtained in the Arctic region,
of climatic change associated with the greater intensity of atmospheric circulation noticed in the
last years, the author investigated the distribution of pressure in more detail than those given by
BAUR in 1929. Observations of 75 stations for the period of 1932-1940 were used for computations
and drawing of mean monthly isobars in Arctic area. The network is shown by Fig. 13. *Subject
Headings:* 1. Pressure distribution charts 2. Arctic networks.—N.A.S.

7A-100 551.542:551.515.8
Khromov, S. P., *Novye karty glavnykh frontal'nykh zon*. [New maps of the principal frontal
zones.] *Meteorologiya i Gidrologiya*, No. 8:11-19, 1940. 2 maps. **DLC**—Position of fronts,
pressure distribution and wind vectors are shown on Mercator maps for Jan. and July. In winter
Arctic fronts are discerned: 1. Over Pacific Ocean, and North America, 2. Over Atlantic Ocean,
3. Along the northern coast of Asia and 4. Along the northern coast of Okhotsk Sea. Textual

discussion contains important characteristics of Arctic air circulation. *Subject Headings:* 1. Arctic air circulation 2. Arctic fronts 3. Pressure distribution 4. Frontal zone maps.—N.A.S.

7A-101

551.515.1

§Pogolian, Kh. P. and Taborovskii, N. L., *Protsess antitsiklogeneza nad Evropoi 18-24 avgusta 1938 g. v svete advektivno-dinamicheskogo analiza*. [Processes of anticyclogenesis over Europe, August 18-24, 1938 as revealed by advective-dynamic analysis.] *Meteorologiya i Gidrologiya*, No. 10:38-55, 1940. 20 figs., 2 refs. German summary p. 55. **DLC**—Comprehensive and detailed analysis of anticyclogenesis processes, showing their general characteristics independent from geographical influences. Many synoptic charts include also the Arctic section. It has been proved that the changes of pressure at the ground depend upon the dynamic factors and not on the advective thermal conditions. Anticyclones originate when temperature differences of two approaching air masses, in the entrance area of the frontal zone, surpass the critical value. Stationary anticyclones are regarded as being systematically regenerated by new convergence areas originating in adjoining fields. *Subject Headings:* 1. Anticyclogenesis 2. Stationary anticyclones.—N.A.S.

7A-102

551.501.9:551.509(94)

Sergeev, N., *Biuro pogody i gidrometeorologicheskiiye stantsii na Severnom Morskoye Puti*. [Weather Bureau and hydrometeorological stations along the Northern Sea Route.] *Sovetskaya Arktika*, 6:3-8, 1940. **DLC**—For the navigation period of 1939, the Northern Sea Route was divided into 5 synoptic regions with a weather bureau, a radio center and a network of hydrometeorological stations in each of them. In the present paper the author reviews the results of the activities of each of the weather bureaus, discusses the capacities and achievements of the personnel, the number and degree of accuracy of the forecasts and suggests some organizational changes intended to improve the work. *Subject Headings:* 1. Arctic weather services 2. Synoptic regions 3. Forecast accuracy 4. Northern Sea Route, Soviet Arctic.—A.M.P.

7A-103

551.5:016:00

†*Spisok izdaniy Arkticheskogo nauchnogo instituta 1920-1939*. [List of publications of the Arctic Institute for 1920-1939.] *Problemy Arktiki*, No. 3:157-184, 1940. **DLC**—Nearly 300 publications are listed by series, number, author and title, with contents of those which contain several articles. Dates of publications range from 1920-1939. The list includes 49 issues of the *Trudy Severnoy nauchno-promyslovoi ekspeditsii*; 140 volumes of the *Trudy of the Arctic Institute*; 20 publications of the *Materialy po izucheniiu Arktiki*; "Arctica" (5 vols.); *Problemy Arktiki* (11 numbers) and *Bulletin of the Arctic Institute* (55 issues). The author index lists approximately 400 authors, including such writers as V. I. Vize who contributed 19 articles. (*Same item as* 5I-120, Sept. 1954, *MAB*.) *Subject Headings:* 1. Arctic bibliographies. I. Leningrad. Arkticheskiy Nauchno-Issledovatel'skii Institut.—M.R.

7A-104

551.5:061

Tolstikov, E., *Sluzhba pogody na myse Shmidt*. [Weather service on Cape Schmidt.] *Sovetskaya Arktika*, No. 7:73, July 1940. **DLC**—This bureau had to serve for the Chukchi Sea, the eastern part of the Siberian Sea, the northern part of the Chukchi Peninsula and Bering Strait. Details of operations and information collected are presented. The obstacles are cited. Important experiences and hints about the interrelated processes and phenomena which can be very useful for forecasting are described. *Subject Headings:* 1. Local forecast studies 2. Synoptic situations 3. Soviet Arctic.—N.A.S.

7A-105

551.582(268) 551.575

*Vize, Vladimir Iul'evich, *K klimatologii arkticheskikh morei*. [The climatology of Arctic seas.] *Problemy Arktiki*, No. 3:45-54, 1940. 6 figs., 6 tables, 16 refs. **DLC**—The author emphasized the unusual phenomenon of decreasing oceanicity of climate in the central part of the Arctic Ocean illustrating it by the annual range of temperature observed by 7 Russian Arctic stations. The zone of maximum oceanicity of climate in the polar basin is pointed out. The annual range of temperature and the mean and extreme values for July are given in tables. Thorough research of fog conditions, daily and annual variation of fog frequency supported by data of relative humidity completes the paper. (*Same item as* 5I-123, April 1954, *MAB*.) *Subject Headings:* 1. Fog 2. Climate of Arctic seas 3. Arctic seas.—N.A.S.

1941

7A-106

551.506.7:551.557

*Carlson, William S., *Aerology and meteorology* (In: Michigan University. *Greenland Expeditions, 1926-1931, Reports*. . . Pt. 2. *Meteorology, Physiography and Botany*. Ann Arbor Univ. of Michigan Press, 1941. p. 63-135. 15 figs., tables, refs.) **DLC**—The primary purpose

the expedition was the study of the atmosphere at all possible heights by regular pilot balloon ascents at specific hours. Results of each ascent made from Camp Scott during Sept. 1930–April 1931 are shown on charts. Resultant upper air currents up to 12,000 m are presented by figs. 5–7. Data obtained are discussed according to: 1. free-air wind directions and velocities, 2. free air-winds from different surface directions and 3. frequency of free-air winds from different directions. *Subject Headings: 1. Upper air winds 2. Camp Scott, Greenland.—N.A.S.*

7A-107 551.513(98)
Vitel's, L. A., *Izmeneniia sostoianniia poliarnykh tsentrov deistviia atmosfery v sviazi s barometricheskimi rezhimom Arktiki*. [Changes in the Polar centers of the atmosphere dependent on the pressure regime of the Arctic.] *Meteorologiya i Gidrologiya*, No. 4:13–21, 1941. 3 figs., 8 tables, 1 ref. **DWB**—Based on synoptic charts for 1932 and 1937, this investigation presents the main changes in the Polar centers of the atmosphere. Arctic is divided into five sections. Number of stations with anticyclonic situation and characteristics of pressure are calculated for each section and interrelations are analyzed. *Subject Headings: 1. Polar anticyclones 2. Synoptic situations.—N.A.S.*

1942

7A-108 551.582:629.13(266.5)
U. S. Weather Bureau, *Air routes, Alaska to Siberia*. U. S. Weather Bureau. *Statistics Division Preliminary Report*, No. 23, 1942. 99 p. charts, tables. **DWB**—Climatic conditions along two routes across the North Pacific from Alaska to Siberia discussed. From the meteorological standpoint alone, the northern route (from Fairbanks to Nikolaevsk via Nome and Okhotsk) appears to have a marked advantage over the southern route (from Kodiak to Khabarovsk via Petropavlovsk and Tokyo) in colder months of the year and a slight advantage in summer. Disadvantages of the northern route are continuous succession of cyclonic depression and a high percentage of dense fogs. Southern route, while encountering extremely low temperatures in winter, is preferable because of a larger percentage of clear skies. Winds variable over both. (*Same item as 4I-140*, Sept. 1953, *MAB*.) *Subject Headings: 1. Arctic flights 2. Synoptic situations 3. Alaska-Siberia air route 4. North American Arctic 5. Soviet Arctic. I. U. S. Air Weather Service.—M. P. Kramer.*

1943

7A-109 629.13:551.58(268.3)
Germany. Reichsamt für Wetterdienst, *Das Flugwetter im Gebiet der Barents-See*. [Flying weather in the region of the Barents Sea.] 1943. p. 243–303. 38 charts, tables. **DWB, DAWS**—Discussion of weather by seasons is followed by values of monthly mean wind speed, absolute extreme and mean temperatures, mean cloudiness, snowfall amount, snowdepths, frequencies of probabilities less than 1 km and of low cloud heights less than 300 m (independently), and days with rain and snowstorms; as well as Jan. and July wind roses; for numerous stations on the mainland and islands surrounding the Barents Sea. Also, isothermal, isobaric, and ice limit charts of the region, and a detailed ice limit data for the White Sea and Murman Coast. *Subject Headings: 1. Arctic flights 2. Pressure distribution 3. Visibility 4. Cloud height 5. Fog 6. Snowstorms 7. Wind roses 8. Barents Sea.—R. Quiros.*

7A-110 551.524.7
Jones, F. M., *Maximum and minimum temperatures in the upper air*. Great Britain. *Meteorological Research Committee, M.R.P.* 150, Oct. 30, 1943. 3 p. 2 figs., 2 tables, 4 refs. **DAWS**—In this work are found graphs of the summer and winter maximum and minimum temperatures for Alaska and northern United States. (*Same item as 2I-101*, Sept. 1951, *MAB*.) *Subject Headings: 1. Upper air temperatures 2. Alaska 3. Northern Hemisphere.—N.A.S.*

7A-111 551.509.33
Shtabova, A. P., *Estestvennye sinopticheskie periody na territorii Sibiri i Dal'nego Vostoka*. [Natural synoptic periods in the territory of Siberia and the Far East.] U.S.S.R. *Glavnoe Upravlenie Gidrometeorologicheskoi Sluzhby, Trudy Nauchnoi-issledovatel'skikh Uchrezhdenii, Ser. 2. Sinopticheskaya Meteorologiya*, (3), 1943. p. 48–65. 17 figs. **DWB**—The methods of Multanovskii are applied to the Far East and Siberia. A series of composite charts show the movements of air masses and fronts for 16 discrete periods of about a week each during the years 1934–1940. (*Same item as 2B-182*, Feb. 1951, *MAB*.) *Subject Headings: 1. Extended forecasting 2. Natural synoptic periods 3. Mul'tanovskii method 4. Composite charts 5. Siberia 6. U.S.S.R. I. Mul'tanovskii, P.—M.R.*

1944

7A-112

Hobbs, W. H. and Belknap, R. L., **Errors in the synoptic weather charts which cover the Greenland Region.** *American Geophysical Union Transactions*, Pt. 3:482-490, 1944. 10 figs., 10 refs. **DLC**—Discussing data on atmospheric circulation over Greenland obtained by American, German and British expeditions, the author concludes that the cyclones which arrive at the Greenland west coast are halted there and pass up Davis Strait to be dissipated on reaching the Polar Basin, the oceanic area north of 80°. Graphic model of Greenland glacial anticyclone is presented. *Subject Headings: 1. Cyclones 2. Glacial anticyclone 3. Greenland.—N.A.S.*

551.509.2

7A-113

Hobbs, W. H., **Rhythm in the Greenland glacial anticyclone.** *American Geophysical Union Transactions*, Pt. 3:491-494, 1944. figs., 5 refs. **DLC**—Discussing data obtained by the German expedition to Greenland during Aug. 1, 1930 to Aug. 8, 1931, the author presents diagrams made by GEORGI, the director of the Mid-Ice station, showing the variations of temperature, wind and cloudiness, and finds a sort of rhythm best brought out in the temperature diagram. There is a longer period which averages 23 days, and a shorter one of 6½ days. *Subject Headings: 1. Glacial anticyclone 2. Temperature rhythms 3. German Greenland Expedition, 1930-1931 4. Mid-Ice Station, Greenland.—N.A.S.*

551.500.4

7A-114

Vize, V. IU., **Parallakticheskie atmosferynye prilivy v Arktike.** [Parallactic atmospheric tides in the Arctic.] *Problemy Arktiki*, No. 1:33-55, 1944. 13 figs., 12 tables, 5 refs. **DGS**—A study of the relation between lunar months and atmospheric tides in the Arctic region, based on observations of baric waves in Tiksi Bay and on Wrangel Island. (Same item as 2.11-108 and 51-133, Nov. 1951, and Sept. 1954, *MAB*.) *Subject Headings: 1. Pressure waves 2. Atmospheric tides 3. Lunar influences 4. Wrangel Island.—C. Klachko.*

551.54:551.590.22(98)

1945

7A-115

§Dorsey, Herbert Grove, Jr., **Some meteorological aspects of the Greenland ice cap.** *Journal of Meteorology*, 2(3):135-142, Sept. 1945. 16 charts, 6 refs. **DLC**—The role of the the Ice Cap as a cold source in the general circulation, and the importance of Ice Cap as a barrier to cyclonic storms are analyzed. Specific weather patterns which lend support to certain theories and illustrate various typical situations have been studied and the conclusions were derived that: 1) the important outbreaks of Ice Cap air require a favorable stage in the general circulation, and are not due to "Strophs" of the glacial anticyclone; 2) the transit of fronts and storms across the Ice Cap is governed by the general atmospheric circulation. *Subject Headings: 1. Glacial anticyclone 2. Cyclonic storms 3. Pressure distribution 4. Greenland.—N.A.S.*

551.515.7:551.311.12(98)

7A-116

†Dzerdzeevskii, B. L., **Tsirkuliatsiia atmosfery v tsentral'nom poliarnom basseine.** [Circulation of the atmosphere in the Central Polar Basin.] *Ekspeditsiia SSSR na Severnyi Polius*, 1937, Trudy Dreifuishchei Stantsii "Severnyi Polius" . . . 1937-1938 ff., pub. 1940-1945. Vol. 2:64-177, figs., charts, tables, photos, 74 refs. **DLC**—A very complete treatment of atmospheric processes in Arctic illustrated by polar maps of pressure distribution, temperature distribution, positions of the main frontal zones, cyclone frequency, trajectories of Arctic invasions and cyclones, etc. Complete translation into English, as **Circulation of the atmosphere in the Central Polar Basin** by Curtis D. Benster, issued as California. Univ. at L. A., Dept. of Meteorology, Contract AF 19(122)-228 Scientific Report, No. 6, June 1954. **DWB**. (See items 1-127, Jan. 1950 and 51-137, Sept. 1954 *MAB*.) *Subject Headings: 1. Cyclones 2. Arctic invasions 3. Pressure distribution. I. Benster Curtis D. (trans.).—N.A.S.*

551.51

7A-117

*§Dzerdzeevskii, B. L., **Tsirkuliatsionnye skhemy v troposfere tsentral'noi Arktiki.** [Circulation schemes in the troposphere of the central Arctic.] Moscow, Izdatel'stvo Akademii Nauk, SSSR 1945. 40 p. 28 figs., 4 tables, 25 refs. **DLC**—Circulation processes in the central Arctic are described on the basis of data obtained by Russian Arctic expeditions, especially of the "Severnyi Polius" Expedition 1937. Refuting the old ideas about the uniformity of circulation and stability of weather in the central Arctic, the author shows various schemes of circulation and diversity of meteorological conditions in this region. Data of meteorological elements and list of cyclones with pressure drop ≥ 15 mb observed by the "North Pole" drifting station are given and types of cyclonic activity are discussed. (Same item as 2.7-78, July 1951, *MAB*.) Translated into English and

551.513

ed as California. Univ. at L. A. Dept. of Meteorology, Contract AF 19(122)-228, Scientific Report, No. 3, June 1954. Section devoted to this title has 40 p. 28 figs., 25 refs. DWB. *Subject Headings*: 1. Cyclonic activity 2. Synoptic situations 3. Arctic fronts 4. Papanin Expedition, 1937-1938.—N.A.S.

7A-118 551.506.5
[Hobbs, William Herbert, **The Greenland glacial anticyclone**. *Journal of Meteorology*, 2(3): 153-153, Sept. 1945. 10 figs., 2 tables, 36 refs. DLC—Observations taken by exploring expeditions used in this treatise on weather conditions over Greenland. Results of analysis are presented in 11 concise statements. Main atmospheric processes, especially the Greenland fixed glacial anticyclone, are elaborately described and illustrated by charts and tables. *Subject Headings*: 1. Glacial anticyclone 2. Synoptic situations 3. Greenland.—N.A.S.

7A-119 551.501.7:551.557 551.501:551.552
[Leipper, Dale F. and Miller, Dwight D., **Wind diagram for Fort Randall (Cold Bay), Alaska**. U. S. Air Force, 1945?] 7 p. 3 diagrs. Photostat of typescript. DWB—1. A wind diagram is presented summarizing the relationship between synoptic pressure patterns and observed surface winds at Ft. Randall, Alaska, during the year 1944. Two additional diagrams represent steps in construction of the wind diagram. 2. A comparison between the average winds in the various geostrophic wind sectors shows relatively strong surface winds to be associated with southerly and southsoutheasterly geostrophic winds. These strong surface winds are predominantly southeast and southsoutheast. Southsoutheasterly winds prevail with geostrophic wind directions throughout a half circle from about 75° to 225°. *Subject Headings*: 1. Upper air winds 2. Pressure distribution 3. Fort Randall, Alaska. I. U. S. Air Force.—Authors' abstract.

7A-120 551.509.33:551.515.7
[Namias, Jerome, **Investigation of polar anticyclogenesis and associated variations of the zonal index**. U. S. Weather Bureau, *Research Paper*, No. 24, 1945. 22 p. 15 figs., 3 tables, 11 refs. (photo offset.) DWB—A strong polar high in latter half of Feb. 1941 is investigated in detail by 5-day mean surface pressure maps and isallobars. The Aleutian low split into two and the Siberian anticyclone crossed the polar regions. Relations to Asiatic zonal index are illustrated, including height of tropopause crest and pressure crest. Zonal index correlations quoted. (Same item as 4E-131, Jan. 1951, MAB.) *Subject Headings*: 1. Polar anticyclogenesis 2. Pressure distribution 3. Siberian anticyclone 4. Extended forecasting.—C.E.P.B.

7A-121 551.513.2:551.515
[Namias, Jerome and Clapp, Philip E., **Studies of the motion and development of long waves in the westerlies**. *Journal of Meteorology*, 1(3/4):57-66, Dec. 1945. 2 figs., 2 tables, 99 charts, 100 refs. DLC—Five day mean charts of pressure distribution at sea level and at 10,000 ft on a polar projection map are presented. Behavior of the long waves of westerlies is studied and found in good agreement with Rossby's formula. Troughs, ridges and blocking cases are also investigated. (Same item as 2A-126, Jan. 1951, MAB.) *Subject Headings*: 1. Pressure distribution 2. Baricography 3. Blocking cases 4. Northern Hemisphere circulation.—N.A.S.

1946

7A-122 551.557
[Brooks, C. E. P.; Durst, Charles S. and Carruthers, Nellie, **Upper winds over the world**. Pt. 1, **The frequency distribution of winds at a point in the free air**. *Royal Meteorological Society, Quarterly Journal*, 72(311):55-73, Jan. 1946. 10 tables, 2 refs. DLC—The authors, realizing the limitations imposed by scanty observational data, present a method whereby, given the resultant direction and velocity of the wind at a point in the free air and some measure of the scatter of individual observations about the resultant, a wind rose can be constructed to show the frequency distribution of winds of different directions and velocities which would be given by a long series of observations. Thus, a "long term" distribution can be estimated at various levels for any stations with a short but representative record. (Same item as 4E-139, April 1953, MAB.) *Subject Heading*: 1. Upper winds.—G.J.E.

7A-123 551.542(98)
[Dzerdzeevskii, B. L., **O raspredelenii atmosfernogo davleniia nad tsentral'noi Arktikoï**. [The distribution of atmospheric pressure over the Central Arctic.] *Meteorologiya i Gidrologiya*, No. 33-38, 1946. 8 figs., 6 refs. DWB—The author compares his own maps of the atmospheric pressure distribution over the Central Arctic based upon the period 1937-1939 with those of D. B. ARELIN. The latter is criticized for drawing the isobars without any consideration of the principles of the general circulation based upon more reliable data in other parts of the hemisphere, and without

the aid of synoptic analysis. KARELIN's main idea was the persistence of the Polar anticyclone throughout the year. The great cyclonic activity over the Arctic, especially in the summer, is stressed by the author and is indicated in his maps. For English translation see: **Translations of Papers by B. L. Dzerdzevskii**. California. Univ. at L. A. Dept. of Meteorology, Contract AF 19(122)-228, Scientific Report, No. 3, 1954. 16 p. 8 figs., 6 refs. *Subject Headings*: 1. Arctic synoptic charts 2. Central Arctic.—I.L.D.

7A-124

551.5:629.13(26)

Karelin, D. B., *Novyi polet k severnomu poliusu*. [A new flight to the North Pole.] *Vsesoiuznoe Geograficheskoe Obshchestvo, Leningrad, Izvestiia*, 78(1):123-124, 1946. fig. DLC. Also Haynes, B. C., **Polar weather flights**. *Weather*, 4(1):11-15, Jan. 1949. plate, 2 figs. And Phillips, Reynolds, **Polar commuters**. *Boeing Magazine*, 20(12):10-13, Dec. 1950. illus. DWB—First article describes briefly flight to the North Pole, via Khatanga Bay, Cape Cheliuskin and Cape Molotov in the Severnaya Zemlya group and return via Koteln Island in New Siberian Group and Chokurdakh near the mouth of the Indigirka, early in Oct. 1945 to make autumn ice observations in the western sector of the Russian Arctic (*same item as 1-40, Jan. 1950, MAB*). The second is an account of a flight from Fairbanks, Alaska to the North Pole and return on Aug. 2, 1948. Also accompanied by cross-section showing place of lowest temperature at 20,000 ft not at pole but about 80°N of the Alaska side (*same item as 1-41, Jan. 1950, MAB*). The third discusses problems of flying over the Arctic Ocean. A chart shows various weather reconnaissance tracks flown in and around Alaska and to the North Pole. (*Same item as 5I-169, Sept. 1954, MAB*.) *Subject Headings*: 1. Weather reconnaissance flights 2. Upper air data 3. Arctic Ocean.—M.R.

7A-125

551.582(268.5)

Prik, Z. M., *Klimaticheskii ocherk Karskogo moria*. [Climatic outline of the Kara Sea.] *Leningrad. Arkhticheskii Nauchno-Issledovatel'skii Institut, Trudy*, v. 187, 1946. 442 p. 10 figs., 23 tables, 58 maps, bibliog. p. 278, appendices p. 339-340. DLC—In this comprehensive climatic description ample data on all climatic elements are found including pressure, frequency of cyclones, wind characteristics up to 2000 m, frequency of severe weather, cloudiness, thermal wind roses and temperature in the free atmosphere. (*Same item as 5I-143, Aug. 1954, MAB*.) *Subject Headings*: 1. Pressure distribution 3. Upper air data 3. Cyclones 4. Kara Sea, U.S.S.R.—N.A.S.

7A-126

551.582:551.5:09.34(798)

§U. S. Army Air Forces. Weather Central. 11th Weather Region, **Report on Elmendorf (Alaska) weather**. Jan. 20, 1946. 38 p. figs., charts, tables. DWB—Climatology of region around Elmendorf Field (Anchorage), Alaska for the use of the forecaster or pilot: precipitation, fog, winds, etc., with seven synoptic series representing case histories of various adverse weather types. Detailed statistical and graphic representation of precipitation, fog and strong winds with various airflow types. Ample use made of hourly sequences, upper air soundings, etc., and of duration frequency data. One of the better local weather studies. (*Same item as 3-118, March 1950, MAB*.) *Subject Headings*: 1. Local weather studies 2. Aeronautical meteorology 3. Synoptic situations 4. Elmendorf Field, Alaska.—M.R.

7A-127

551.542(98)

U. S. Weather Bureau, **Normal weather maps. Northern Hemisphere, sea level pressure**. [Wash., D. C.] 1946. [1 p.] +13 charts. DLC—Maps present monthly and annual mean sea level pressure distribution for the 40½ year period (1899-1939) covered by its **Daily synoptic series**, **Historical weather maps, Northern Hemisphere, Sea Level, Jan. 1899-June 1939**. DLC—Basic pressure data were obtained by interpolating from the isobars on the Daily Historical Weather Maps the sea-level pressure at each of following intersections of latitude circles and meridians: 1) every 10° meridian on the latitude circles, 10°, 20°, 70° and 80°N; 2) every 5° meridian on the latitude circles 25°, 30°, 40°, 45°, 50°, 55°, 60° and 65°N and 3) the North Pole. Compares these charts with those of BAUR (1929) and SHAW (1936) and points out that the present series shows at times pressure values in the polar area as much as 10 millibars greater than either of the other series. Other differences noted. However, the analysis is least reliable for the polar area north of 75°N lat. (*Same item as 5I-145, Sept. 1954, MAB*.) *Subject Headings*: 1. Arctic synoptic charts 2. Normal weather charts 3. Northern Hemisphere.—M.L.R.

7A-128

551.582(98)

*§U. S. Weather Bureau. Statistics Division, **Climatology of the Arctic regions**. U. S. Air Weather Service, *Special Study*, No. 58, Dec. 1946. 3 v. 101 figs., 94 tables, bibliog. (113 items at end of Pt. 3). DWB—Revision of the U. S. Weather Bureau, **Preliminary Report, No. 36, Climatology of Arctic regions**, originally written in the latter part of 1942. A study of possible Arctic air routes, but containing much of basic climatic data. The report concerns the American, European

Asiatic Arctic and sub-Arctic regions; Greenland and the Arctic Ocean and adjacent seas. It includes a discussion of the general atmospheric circulation and the air masses involved and of synoptic situations occurring most frequently. Pt. II consists of a detailed discussion of certain other factors such as visibility and illumination, cloudiness and ceilings, temperature, precipitation, snow cover and sea ice. Pt. III includes tables and graphs of climatic data and a bibliography. The whole work contains summaries of most of the available climatic data, both published and unpublished, on the Arctic and sub-Arctic, up to 1942. Upper air as well as surface data are used. *See item as 5I-146, Sept. 1954, MAB.) Subject Headings: 1. Upper air data 2. Synoptic situations 3. Arctic air routes. I. Rigby, Malcolm II. Lamoureux, C. E.—M.R.*

551.524.37
von Koch, H. G., *Der strenge Winter 1946-47 in Mitteleuropa und dem nördlichen Polargebiet.* [The severe winter of 1946-47 in Central Europe and in the northern polar region.] *Polarforschung*, 1947, 1(1-2):111-118, 1946. 3 tables, 3 refs. DLC—Synoptic situations producing strong frosts are analyzed and temperature conditions in Middle Europe are compared with those in Polar regions of the Eastern Hemisphere. *Subject Headings: 1. Severe winters 2. Synoptic situations 3. European Arctic 4. Asiatic Arctic.—N.A.S.*

551.513(98)
Vitel's, L. A., *Tsiklony severnykh morei i poteplenie Arktiki.* [Cyclones of the northern seas and the warming of the Arctic.] *Meteorologiya i Gidrologiya*, No. 5:32-40, 1946. 3 figs., 5 tables, 2 refs. English translation by Elizabeth Heiden available, 29 p. DLC—Various studies dealing with the intensification of the general circulation and cyclonic activity in the higher latitudes of the European Arctic with special reference to the present amelioration of the climate in the higher latitudes are reviewed. A comparison of number of days with cyclones for 1900-1919 and 1920-1930 shows that the number of cyclones has not increased during the latter period which is characterized by a gradual warming of the Arctic climate. Data are presented showing that the increased cyclonic density is reflected in the greater deepening of the cyclones and that the number of days with moderate and weak cyclones is diminished. *Subject Headings: 1. Cyclonic activity 2. European Arctic.—I.L.D.*

1947

551.524.7
Alisov, B. P., *Vysota nulevoi izotermiy v svobodnoi atmosfere nad Evropeiskoi territoriei Sioyza R.* [The height of zero isotherm in the free atmosphere over European Russia.] *U.S.S.R. Voennoe Upravlenie Gidrometeorologicheskoi Sluzhby, Trudy Nauchno-Issledovatel'skikh Uchrezhdenii*, 1947, 2, Sinopticheskaya Meteorologiya, 24:52-62, 1947. fig., 5 tables, 2 refs. DLC—Annual variations of the height of zero isotherm is shown for the northern region of Russia by graphs based on synoptological data from 1935-1941 obtained in Murmansk and Arkhangelsk. The maximum height of 1 km is reached in July. *Subject Headings: 1. Upper air temperatures 2. Murmansk, U.S.S.R. 3. Arkhangelsk, U.S.S.R.—N.A.S.*

551.513
Bugaev, V. A., B. L. Dzerdzeevskii.—*Tsirkulatsionnye skhemy v troposfere tsentral'noi Arktiki.* [B. L. Dzerdzeevskii. Circulation patterns in the troposphere of the Central Arctic.] *Meteorologiya i Gidrologiya*, No. 3:84-85, 1947. DWB—In a review of B. L. Dzerdzeevskii's paper (see 551-117), based on recent data obtained by explorers of the Arctic (mainly from the drifting station "Svernyi Polius"), the author writes that the study proved that all the circulation patterns of the troposphere of more southern latitudes exist also in the Arctic almost up to the North Pole; changes of weather in the Arctic are also connected with changes of air masses and atmospheric disturbances; cyclones and anticyclones. Notwithstanding his disagreement with some of Dzerdzeevskii's particular opinions, the author considers the publication as a matter of great importance. *See item as 2.9-76, Sept. 1951, MAB.) Subject Headings: 1. General circulation. I. Dzerdzeevskii, Boris L.—C. Klachko.*

551.510.52/3(01)
Flohn, Hermann, *Die mittlere Höhenlage der Tropopause über der Nordhalbkugel.* [Average height of the tropopause over the Northern Hemisphere.] *Meteorologische Rundschau*, 1(1/2):26-29, July/Aug. 1947. 4 figs., 2 tables, 8 refs. DWB—Circumpolar maps show tropopause height in the Northern Hemisphere for summer and winter when the monsoon influence is prevalent. Tropopause is comparatively low in cold areas, high in warm areas. Meridional cross sections show that in winter the slope of the tropopause is steeper and the maximum occurs in more southerly latitudes than in summer. The slope of the tropopause in summer in the Southern Hemisphere is even steeper than that of the Northern Hemisphere in winter). During summer the temperature of the tropo-

pause increases steadily from equator to the pole while in winter a maximum tropopause temperature occurs in the middle latitudes. (Same item as 5D-135, April 1954, MAB.) *Subject Headings:* 1. Tropopause in Arctic 2. Meridional cross sections 3. Northern Hemisphere.—*Author's abstract.*

7A-134

551.57

Flohn, Hermann, *Grundzüge der atmosphärischen Zirkulation über Sibirien und dem angrenzenden Polarmeer*. [Basic features of the atmospheric circulation over Siberia and the adjoining Polar Sea.] *Polarforschung*, Kiel, Ser. 2, 17(1/2):143-148, 1947. 4 tables. DWB—Tables of mean temperature in the free atmosphere for summer and winter and of upper wind data in 5000 and 10,000 m are given. Author concludes with following results as being important: 1) In the troposphere, the existence of a circumpolar low-pressure-eddy (Tiefdruckwirbel) beyond 2 km. has been determined. 2) Its shape is considerably modified by the "monsoonal" influence of the large continent of Asia, which in summer develops a warm center in the free atmosphere, whereas in winter an intensive cold one. *Subject Headings:* 1. Upper air winds 2. Temperature gradients in Arctic 3. Siberia, U.S.S.R. 4. Arctic Ocean.—N.A.S.

7A-135

551.582(55)

Flohn, Hermann, *Zum Klima der Kältepole der Erde*. [On the climate of the cold poles of the earth.] *Meteorologische Rundschau*, 1(1-2):25-26, July/Aug. 1947. table, bibliog. DLC, DWB—Monthly mean temperature and wind data for Verkhioiansk for the period 1883 to 1929 are presented and compared with five years of mean temperature data for Oimekon. Verkhioiansk has long been considered to be the "cold pole" of the Earth, but since 1929 the consensus of opinion is that Oimekon, which lies in the upper reaches of the Indigirka, 650 km southeast of Verkhioiansk and 450 km from the Okhotsk Sea (lat. 63°10'N, long. 143°15' E, elev. 754 m.) in 10-12 km wide valley surrounded by 2000 m high range holds that distinction. Since during the winter of 1929-1930 the mean temperature at Oimekon was 3.4°C lower than at Verkhioiansk it was assumed that the same relation would hold true over a long period of years. (Same item as 4-126, April 1951, MAB.) *Subject Headings:* 1. Cold poles 2. Local circulation 3. Minimum temperatures 4. Siberia, U.S.S.R.—M.R.

7A-136

551.513:551.524.3

Namias, Jerome, *Characteristics of the general circulation over the Northern Hemisphere during the abnormal winter 1946/1947*. *Monthly Weather Review*, 75(8):145-152, Aug. 1947. 11 figs., 4 refs. DLC—A thorough analysis of atmospheric processes during this abnormal winter has been made and illustrated by polar charts of surface pressure in Jan. and Feb. and baric topography of 700 mb level. Temperature anomalies of the lower troposphere, 1000 mb to 700 mb are also presented. The main features of circulation showed the westward intrusion of the Siberian High into Europe, the absence of Icelandic low pressure trough extending northeastward, the imprisonment of the North American Polar Continental Anticyclone in northwest Canada and domination of the United States by Pacific air masses and the Great Basin Anticyclone. *Subject Headings:* 1. Arctic air circulation 2. Abnormal winters 3. Pressure distribution 4. Baric topography 5. Arctic synoptic charts 6. Arctic upper level charts.—N.A.S.

7A-137

551.509.311

Oliver, Vincent J., *The forecasting significance of high level winds in sub-Arctic regions*. *American Meteorological Society, Bulletin*, 28(1):9-14, 1947. 4 figs., 4 refs. DLC—The following report is an attempt to illustrate some of the marked changes in wind direction and velocity that occur in the layer of atmosphere between 20,000 and 60,000 ft above the surface and to suggest how these changes may be used in forecasting the weather on the northern fringes of the belt of westerlies. (Same item as 4G-8, July 1953, MAB.) *Subject Headings:* 1. Upper air winds 2. Local weather studies 3. Sub-Arctic regions.—*Author's abstract.*

7A-138

551.513

*†Pogosian, Kh. P., *Sezonnye kolebania obshchei tsirkuliatsii atmosfery*. [Seasonal fluctuations in general circulation of the atmosphere.] Leningrad. Tsentral'nyi Institut Prognozov, Trudy, 1 (i.e., 28), 1947. 88 p. 37 figs., 105 tables, 25 maps, 133 refs. DLC—Elaborate analysis of pressure distribution at surface and of the topography of 500 and 1000 mb surfaces for anomalous years is made for the whole Northern Hemisphere and illustrated by polar maps. Meridional exchange is regarded as the basic characteristic of circulation activity. The rate of meridional exchange can be determined from the sign of the surface pressure anomaly. A positive anomaly in the Alaska region in winter indicates a high rate of meridional exchange and a negative anomaly of temperature over North America. *Subject Headings:* 1. Pressure distribution 2. Baric topography 3. Anomalous circulation 4. Meridional exchange 5. Arctic upper level charts 6. Arctic synoptic charts.—N.A.S.

- 7A-139** 551.506.5:551.465(268)
 Ruthe, Kurt, Von den wissenschaftlichen Ergebnissen der Forschungsstation "Nordpol." Scientific results of the "North Pole" experimental station.] *Polarforschung*, Ser. 2, 17(1/2):170-194, 1947. DLC—Results of the Russian expedition "Severnyi Polius" which wintered on a drifting ice floe during May 21, 1937-Feb. 19, 1938 are reviewed. Evidence of frequent passage of cyclones through the central Arctic is provided. Barometer readings ranged from 720 to 791 in 3 min. *Subject Headings*: 1. Arctic weather 2. Pressure jumps 3. Cyclones 4. Papanin North Pole Expedition, 1937-1938.—N.A.S.
- 7A-140** 551.513:551.524.34(211.1)
 Ruthe, Kurt, Zur Erwärmung der Arktis. [The warming of the Arctic.] *Polarforschung*, 23:20-22, 1945. table. DLC—Deviations of winter air temperature from Nov. to March for the period 1911-1941 are given by WEICKMANN for Spitsbergen, showing the trend to higher temperatures. The reason is found in the change of the general air circulation, deepening of cyclones in the North Atlantic and Pacific and reinforcement of Azores anticyclone. *Subject Headings*: 1. Warming of Arctic 2. Temperature variations 3. Spitsbergen. I. Weickmann, L.—N.A.S.
- 7A-141** 551.557.2
 U. S. Air Weather Service. Evaluation and Development Div., Isograms of wind speed at normal surface 10,000 ft, 20,000 ft, 10, 13, 16, 19 km. and 700 mb and 500 mb contour charts. January through December, N. Hemisphere. Washington 1947. 120 charts. DWB—Isograms of stream lines drawn for each level and month over the Northern Hemisphere. Wind speeds given in mi/hr. Monthly 500 mb contour charts are drawn. *Same item as* 4E-150, May 1953, 1B.) *Subject Headings*: 1. Upper air winds 2. Arctic upper level charts 3. Baric topography of Northern Hemisphere.—G. J. Evans.
- 7A-142** 551.509.1(09):551.582.3
 Wexler, Harry and Tepper, Morris. Results of the wartime historical and normal map program. American Meteorological Society, Bulletin, 28:4:174-178, April 1947. MH-BH—An inventory list of the results of one of the greatest undertakings in the history of meteorology. In Nov. 1941, at the request of meteorologists of the Army Air Forces, U. S. Navy and Weather Bureau, a project was started under the supervision of the latter was started to analyze daily Northern Hemisphere sea-level pressure for the 10-year period 1929-1939. Later the series was extended to cover the 40-year period 1899-1939 [see 51-207, Sept. 1954, MAB]. The daily historical weather maps include 5 series of sea-level and tropospheric maps. Normal monthly weather maps were drawn for sea and higher levels, wind speed, stream lines and relative topography giving also vertical cross sections. Other maps were constructed for five-day mean pressure, mean pressure for each month of the period 1929-1939, flying weather, wind frequency, distribution and tracks of low pressure centers. Much of the material has been published; photostat, photoprint or microfilm copies are available for some of the unpublished material. *Same item as* 51-153, Sept. 1954, MAB. *Subject Headings*: 1. Historical weather maps 2. Arctic upper level charts 3. Arctic synoptic charts 4. Northern Hemisphere. I. U. S. Weather Bureau.—A.A.
- 1948
- 7A-143** 551.513:551.543
 Brier, Glenn W., Changes in the Northern Hemisphere sea-level circulation in the 40-year period 1899-1939. American Geophysical Union, Transactions, 29:6:789-795, Dec. 1948. 17 figs., table. 5 refs. Abstract p. 789. DWB—Pressure indices, based on Northern Hemisphere Level Charts for period 1899-1939, show a slight but real decrease in pressure for every month between successive maxima and minima more stable than time of maxima or minima, and no trend evident in such time of occurrence. Twelve original charts of pressure changes between successive months for entire Northern Hemisphere are presented. *Same item as* 4-52, April 1950, 1B.) *Subject Headings*: 1. General circulation 2. Arctic synoptic charts 3. Northern Hemisphere.—M.R.
- 7A-144** 551.524.7(7)
 Ekhardt, E., Neue Beiträge zum Aeroklima Nordamerikas. [New contribution to the aerology of North America.] *Geographica Pura e Applicata*, 7:56:210-253, 1948. 14 figs., tables, 27 refs. German and English summaries. DLC—Further study, based on earlier records and studies from kite and APOB soundings, using radiosonde records up to the war. Includes consideration of mean temperatures at various altitudes by latitudes, longitudes, anomalies of pressure affecting inter-hemispherical circulation, correlations between troposphere and stratosphere temperatures and height of tropopause with its temperature. *Same item as* 4-84, April 1950,

MAB.) *Subject Headings:* 1. Upper air temperatures 2. Stratospheric temperatures 3. Tropopause 4. North America.—M.R.

7A-145

551.587(5)

*Flohn, Hermann, *Zum Klima der freien Atmosphäre über Sibirien, I, Temperatur und Luftdruck in der Troposphäre über Jakutsk.* [The climate of the free atmosphere over Siberia. Pt. I. Temperature and pressure in the troposphere over Yakutsk.] *Meteorologische Zeitschrift*, 61(2):50-57, Feb. 1944. 4 figs., 6 tables, 10 refs. II, *Die regionale winterliche Inversion.* [Pt. I. The regional winter inversion.] *Meteorologische Rundschau*, 1(3/4):75-79, Sept./Oct. 1947. 3 figs., 2 tables, 18 refs. III, *Die vertikale Windverteilung über Jakutien.* [Pt. 3. The vertical wind distribution over Yakutsk.] *Ibid.*, 1(15/16):475-478, Sept./Oct., 1948. figs., 8 tables, 11 refs. DLC—I. The temperature and pressure data obtained by means of radiosonde ascents for a period of 17 months at Yakutsk were analyzed with particular reference to the occurrence of the winter temperature inversion (on the average at an altitude of 1720 m at a temperature of 18°C). The winter inversion consists of two parts: the lower predominantly ground inversion with a depth of 300-500 m; over this is superimposed the principal inversion with weakly positive or negative gradients. The ground temperature is reached again at 500 m on the average. Data are on mean monthly vertical temperature gradients, means and extremes of temperature at the main isobaric surfaces, mean geopotential of the main isobar surfaces, etc. II. An analysis of the frequency, height and extent of the winter inversion in Siberia and Central Asia is presented. III. Little known wind-aloft data (1926-1930) are used for three Siberian stations: Petropavlovsk, Yakutsk and Verkhoyansk, to determine not only the frequency of winds aloft and the mean air movement and circulation over eastern Siberia, but by indirect means the average seasonal height of the tropopause (6 km in winter, 11 km in summer), and even the horizontal temperature distribution. (Pt. I. *Same item as* 2-133, Feb. 1950, MAB.) *Subject Headings:* 1. Baric topography 2. Temperature gradients in Arctic 3. Cold pole location 4. Siberian anticyclone 5. Tropopause in Arctic 6. Siberia 7. Alaska.—I.L.D., M.R.

7A-146

551.515.7(988):551.553.1(988)

Georgi, Johannes, *Bemerkungen zur glazialen Antizyklone.* [Notes on the glacial anticyclones.] *Annalen der Meteorologie*, 1(10/11):277-283, Sept./Oct./Nov. 1948. 5 figs., 16 refs. German and English summaries p. 277. DLC—The theory of the "eisbürtige" (born over the ice) anticyclones elaborated by W. H. Hobbs in numerous studies since 1910 has been accepted in Europe with certain modifications, whilst it has been refused in recent papers by American meteorologists and geologists. In fact, the wind system over Greenland is mainly anticyclonic in the lower layers. But according to investigations made by the author, it is not firmly coupled with the inland ice, but it is greatly dependent on the joint effect of the neighboring pressure systems, which are guided mechanically by the inland ice ridge, which is more than 2300 m. high, over a distance of 2000 km. *Subject Headings:* 1. Glacial anticyclone theory 2. Greenland. I. Hobbs, W. H.—*Author's abstract.*

7A-147

551.582.1(988)

†Hobbs, William Herbert, *The climate of the Arctic as viewed by the explorer and the meteorologist.* *Science*, Wash., D. C., 108(2800):193-201, Aug. 27, 1948. 33 refs. DWB—Lengthy discussion of past and present theories of pressure distribution and winds over the Arctic Basin and the Greenland Ice-cap. Mention is made of the various expeditions which have studied winds and pressure over the Arctic, especially Greenland. The bibliography gives a great many of the sources of information on this region, down to 1948. Whole discussion is in support of the "Glacial Anticyclone" theory in opposition to the idea of cyclones crossing the Greenland Ice-cap. (*Same item as* 1-135, Jan. 1950, MAB.) *Subject Headings:* 1. Pressure distribution 2. Glacial anticyclone theory 3. Arctic expeditions 4. Greenland.—M.R.

7A-148

551.511:551.521

Penner, C. M., *Note on radiative cooling in the free atmosphere over Arctic Bay.* *Journal of Meteorology*, 5(2):69-70, April 1948. 2 figs., 3 refs. DLC—Radiation calculations have been made using radiosonde data obtained on the northern coast of Baffin Land at Arctic Bay at 73°N lat. The magnitude of the radiative cooling in summer varies from 0.8°C per day in the lowest layer to a maximum of 1.2°C per day at 600 mb after which it decreases again. The increase of radiative cooling up to the 500-600 mb layer shows that radiative cooling is not a stabilizing factor in the lower troposphere but it increases the lapse rate in the layer from 800-500 mb. (*Same item as* 51-156, Sept. 1954, MAB.) *Subject Headings:* 1. Radiative cooling 2. Temperature gradients in Arctic 3. Baffin Island.—N.A.S.

7A-149

551.5:92:016 551.513(988)

†Vocikov, Aleksandr Ivanovich, *Izbrannye sochineniia.* [Selected works.] Moscow, Akademii Nauk, 1948. 750 p. 23 figs., port., numerous tables, bibliog. p. 93-160, biographical data p. 83-90.

Chap. 25, *Srednie i vysshie shirotы Severnoi Ameriki (Soedinennnye Shtaty, Kanada i Grenlandiia)*, Middle and high latitudes of North America (United States, Canada and Greenland)], p. 451-469. This book contains mainly the classic work "The climates of the earth and especially of Asia," first published 1884. Useful information on circulation in Arctic regions is found in several recent chapters. In Chap. 25 on p. 457-469 is found an analysis of atmospheric circulation over the Arctic section of the Arctic, Canada, Greenland and adjacent oceans. (Same item as 3.4-4, April 1952, MAB.) *Subject Headings: 1. Arctic air circulation. I. Grigor'ev, A. A. (ed.).—N.A.S.*

1949

7A-150 551.524.35:551.513
Borisova, E. U., *Sinopticheskie usloviia ekstremal'no—kholodnykh i ekstremal'no—teplykh sinopticheskikh sezonov zimy na Evropeiskoi territorii Soiuza SSR*. [Synoptic conditions of extremely cold and extremely warm winters in European Russia.] *Leningrad. Tsentral'nyi Institut Prognozov, Trudy*, 11 (i.e., 38):135-162, 1949. 15 figs., 8 tables. DLC—Atmospheric processes including abnormally cold winters in European Russia are classified and divided in three types: 1) Invasions of Arctic anticyclones from Taimyr region proceeding in western or south-western direction, 2) Intrusions of Arctic air masses from the northwest and existence of intensive cyclonic activity over Taimyr peninsula and 3) Stationary anticyclone over Eastern Europe formed of continental Arctic air with the Taimyr depression transferred further to the north. Charts showing pressure and air streams covering the Arctic section are included. Possibilities of long range forecasting are discussed. *Subject Headings: 1. Abnormal winters 2. Arctic invasions 3. Extended forecasting 4. Anticyclones 5. U.S.S.R.—N.A.S.*

7A-151 551.509.33
Borisova, L. G., *Sostavlenie dolgosrochnykh prognozov pogody malei zablagorremnosti na territorii Sibiri*. [Compilation of extended forecasts for Siberia.] *Meteorologiya i Gidrologiya*, No. 11-77, 1949. 5 refs., 3 figs., 2 eqs. DLC—Explains some aspects of weather forecasting for 3-18 days according to the method of PAGAVA (which is essentially based on a comparison of the current synoptic processes with analogous development given in a number of schemes not presented here). For this purpose the 500 mb topography and isallobaric charts as well as the relative topography of 1000 mb are prepared daily. The main task for the forecaster is to watch the beginning of a "synoptic period," in order to determine its tendency on the basis of observations during the 2-3 days (especially considering the location of isallobaric centers in regard to the pressure variations) and to compare it with the synoptic history of the previous period. A synoptic example is discussed on this basis, showing the effect of pressure formations in the Siberian Arctic. *Subject Headings: 1. Extended forecasting 2. Pagava's method 3. Synoptic periods 4. Baric topography 5. Siberian Arctic, U.S.S.R.—A.A.*

7A-152 551.515.8(47)
Dubentsov, V. P., *Letniaia transformatsia vozdukhnykh mass nad Kontinentom*. [Transformation of air masses over the continent in summer.] *Leningrad. Tsentral'nyi Institut Prognozov, Trudy*, 17 (i.e., 44):3-62, 1949. 25 charts, 26 tables. 27 refs. DLC—Transformation of cold air masses which move in onto the continent from different regions of the Arctic are analyzed. Charts showing pressure distribution, positions of fronts and tracks of cyclones and anticyclones include the whole Arctic section over Europe and Siberia. (Same item as 5.1-146, Jan. 1954, MAB.) *Subject Headings: 1. Cold mass transformation 2. Pressure distribution 3. Anticyclone tracks 4. Soviet Arctic.—N.A.S.*

7A-153 551.510.52:551.543
Flohn, Hermann, *Mittlere Druck- und Strömungsverhältnisse in der Troposphäre. (I) Sommer. Winter*. [The mean pressure and air streams in the troposphere, Pt. 1, Summer. Pt. 2, Winter.] *Germany. Deutscher Wetterdienst., Grosswetterlagen Mitteleuropas*, 2:61-64, 105-107, 1949. charts. DWB—One of the results of the author's extensive work in meteorology and climatology of the free atmosphere. Mean charts are presented for the major part of the Northern Hemisphere (North America, Atlantic, Europe from 90°N to 30-20°N, Asia and Pacific to 50-45°N) showing the relative topography, temperatures and wind directions of the 500 mb surface. Other charts from 110°W to 70°E present the absolute topography, temperatures and wind directions of 700 mb and 225 mb. The values are arranged for 3 summer and 3 winter months. All available data are used. A discussion of the accuracy of different kinds of ascents is given. The cold pole in the free atmosphere is found over Baffin Island in summer and over Northeast Siberia in winter, accompanied by a second cold pole over the Canadian Archipelago. The influence of the North American continent results in a cold trough over the eastern coast and a warm crest over the western coast, very well expressed in summer. (Same item as 4.3-95, March 1953, MAB.)

pause increases steadily from equator to the pole while in winter a maximum tropopause temperature occurs in the middle latitudes. (*Same item as* 5D-135, April 1954, *MAB.*) *Subject Headings:* 1. Tropopause in Arctic 2. Meridional cross sections 3. Northern Hemisphere.—*Author's abstract.*

7A-134

551.557

Flohn, Hermann, *Grundzüge der atmosphärischen Zirkulation über Sibirien und dem angrenzenden Polarmeere*. [Basic features of the atmospheric circulation over Siberia and the adjoining Polar Sea.] *Polarforschung*, Kiel, Ser. 2, 17(1/2):143-148, 1947. 4 tables. DWB—Tables of mean temperature in the free atmosphere for summer and winter and of upper wind data in 5000 and 10,000 m are given. Author concludes with following results as being important: 1) In the troposphere, the existence of a circumpolar low-pressure-eddy (Tiefdruckwirbel) beyond 2 km. has been determined. 2) Its shape is considerably modified by the "monsoonal" influence of the large continent of Asia, which in summer develops a warm center in the free atmosphere whereas in winter an intensive cold one. *Subject Headings:* 1. Upper air winds 2. Temperature gradients in Arctic 3. Siberia, U.S.S.R. 4. Arctic Ocean.—*N.A.S.*

7A-135

551.582(57)

Flohn, Hermann, *Zum Klima der Kältepole der Erde*. [On the climate of the cold poles of the earth.] *Meteorologische Rundschau*, 1(1-2):25-26, July/Aug. 1947. table, bibliog. DLC, DWB—Monthly mean temperature and wind data for Verkhioansk for the period 1883 to 1929 are presented and compared with five years of mean temperature data for Oimekon. Verkhioansk has long been considered to be the "cold pole" of the Earth, but since 1929 the consensus of opinion is that Oimekon, which lies in the upper reaches of the Indigirka, 650 km southeast of Verkhioansk and 450 km from the Okhotsk Sea (lat. 63°10'N, long. 143°15' E, elev. 754 m.) in 10-12 km wide valley surrounded by 2000 m high range holds that distinction. Since during the winter of 1929-1930 the mean temperature at Oimekon was 3.4°C lower than at Verkhioansk it was assumed that the same relation would hold true over a long period of years. (*Same item as* 4-126, April 1951, *MAB.*) *Subject Headings:* 1. Cold poles 2. Local circulation 3. Minimum temperatures 4. Siberia, U.S.S.R.—*M.R.*

7A-136

551.513:551.524.35

Namias, Jerome, *Characteristics of the general circulation over the Northern Hemisphere during the abnormal winter 1946/1947*. *Monthly Weather Review*, 75(8):145-152, Aug. 1947. 11 figs., 4 refs. DLC—A thorough analysis of atmospheric processes during this abnormal winter has been made and illustrated by polar charts of surface pressure in Jan. and Feb. and baric topography of 700 mb level. Temperature anomalies of the lower troposphere, 1000 mb to 700 mb are also presented. The main features of circulation showed the westward intrusion of the Siberian High into Europe, the absence of Icelandic low pressure trough extending northeastward, the imprisonment of the North American Polar Continental Anticyclone in northwest Canada and domination of the United States by Pacific air masses and the Great Basin Anticyclone. *Subject Headings:* 1. Arctic air circulation 2. Abnormal winters 3. Pressure distribution 4. Baric topography 5. Arctic synoptic charts 6. Arctic upper level charts.—*N.A.S.*

7A-137

551.509.317

Oliver, Vincent J., *The forecasting significance of high level winds in sub-Arctic regions*. *American Meteorological Society, Bulletin*, 28(1):9-14, 1947. 4 figs., 4 refs. DLC—The following report is an attempt to illustrate some of the marked changes in wind direction and velocity that occur in the layer of atmosphere between 20,000 and 60,000 ft above the surface and to suggest how these changes may be used in forecasting the weather on the northern fringes of the belt of westerlies. (*Same item as* 4G-8, July 1953, *MAB.*) *Subject Headings:* 1. Upper air winds 2. Local weather studies 3. Sub-Arctic regions.—*Author's abstract.*

7A-138

551.513

*†Pogosian, Kh. P., *Sezonnye kolebaniia obshchei tsirkuliatsii atmosfery*. [Seasonal fluctuations in general circulation of the atmosphere.] *Leningrad. Tsentral'nyi Institut Prognozov, Trudy*, 1 (i.e., 28), 1947. 88 p. 37 figs., 105 tables, 25 maps, 133 refs. DLC—Elaborate analysis of pressure distribution at surface and of the topography of 500 and 1000 mb surfaces for anomalous years is made for the whole Northern Hemisphere and illustrated by polar maps. Meridional exchange is regarded as the basic characteristic of circulation activity. The rate of meridional exchange can be determined from the sign of the surface pressure anomaly. A positive anomaly in the Alaska region in winter indicates a high rate of meridional exchange and a negative anomaly of temperature over North America. *Subject Headings:* 1. Pressure distribution 2. Baric topography 3. Anomalous circulation 4. Meridional exchange 5. Arctic upper level charts 6. Arctic synoptic charts.—*N.A.S.*

7A-139

551.506.5:551.465 (268)

Ruthe, Kurt, *Von den wissenschaftlichen Ergebnissen der Forschungsstation "Nordpol."* [Scientific results of the "North Pole" experimental station.] *Polarforschung*, Ser. 2, 17(1/2):170-171, 1947. **DLC**—Results of the Russian expedition "Severnyi Polius" which wintered on a drifting ice flow during May 21, 1937-Feb. 19, 1938 are reviewed. Evidence of frequent passage of cyclones through the central Arctic is provided. Barometer readings ranged from 720 to 791 in 3 min. *Subject Headings*: 1. Arctic weather 2. Pressure jumps 3. Cyclones 4. Papanin North Pole Expedition, 1937-1938.—N.A.S.

7A-140

551.513:551.524.34 (211.1)

Ruthe, Kurt, *Zur Erwärmung der Arktis.* [The warming of the Arctic.] *Polarforschung*, 15(1/2):20-22, 1945. table. **DLC**—Deviations of winter air temperature from Nov. to March for the period 1911-1941 are given by WEICKMANN for Spitsbergen, showing the trend to higher temperatures. The reason is found in the change of the general air circulation, deepening of cyclones in the North Atlantic and Pacific and reinforcement of Azores anticyclone. *Subject Headings*: 1. Warming of Arctic 2. Temperature variations 3. Spitsbergen. I. Weickmann, L.—N.A.S.

7A-141

551.557.2

U. S. Air Weather Service. Evaluation and Development Div., *Isograms of wind speed (normal surface) 10,000 ft, 20,000 ft, 10, 13, 16, 19 km. and 700 mb and 500 mb contour charts. January through December, N. Hemisphere.* Washington (1947). 120 charts. **DWB**—Isograms and stream lines drawn for each level and month over the Northern Hemisphere. Wind speeds shown in mi/hr. Monthly 500 mb contour charts are drawn. (Same item as 4E-150, May 1953, MAB.) *Subject Headings*: 1. Upper air winds 2. Arctic upper level charts 3. Baric topography 4. Northern Hemisphere.—G. J. Evans.

7A-142

551.509.1 (09):551.582.3

Wexler, Harry and Tepper, Morris, *Results of the wartime historical and normal map program.* *American Meteorological Society, Bulletin*, 28(4):174-178, April 1947. **MH-BH**—An inventory list of the results of one of the greatest undertakings in the history of meteorology. In Nov. 1941, at the request of meteorologists of the Army Air Forces, U. S. Navy and Weather Bureau, a project under the supervision of the latter was started to analyze daily Northern Hemisphere sea-level maps for the 10-year period 1929-1939. Later the series was extended to cover the 40-year period 1899-1939 (see 5I-207, Sept. 1954, MAB). The daily historical weather maps include 5 series of sea level and tropospheric maps. Normal monthly weather maps were drawn for sea and higher levels, wind speed, stream lines and relative topography giving also vertical cross sections. Other maps were constructed for five-day mean pressure, mean pressure for each month of the period 1899-1939, flying weather, wind frequency, distribution and tracks of low pressure centers. Much of the material has been published; photostat, photoprint or microfilm copies are available for some of the unpublished material. (Same item as 5I-153, Sept. 1954, MAB.) *Subject Headings*: 1. Historical weather maps 2. Arctic upper level charts 3. Arctic synoptic charts 4. Northern Hemisphere. I. U. S. Weather Bureau.—A.A.

1948

7A-143

551.513:551.543

Brier, Glenn W., *Changes in the Northern Hemisphere sea-level circulation in the 40-year period 1899-1939.* *American Geophysical Union, Transactions*, 29(6):789-795, Dec. 1948. 17 figs., table. 5 refs. Abstract p. 789. **DWB**—Pressure indices, based on Northern Hemisphere Sea Level Charts for period 1899-1939, show a slight but real decrease in pressure for every month. Time between successive maxima and minima more stable than time of maxima or minima, and no trend evident in such time of occurrence. Twelve original charts of pressure changes between successive months for entire Northern Hemisphere are presented. (Same item as 4-52, April 1950, MAB.) *Subject Headings*: 1. General circulation 2. Arctic synoptic charts 3. Northern Hemisphere.—M.R.

7A-144

551.524.7 (7)

†Eckhart, E., *Neue Beiträge zum Aeroklima Nordamerikas.* [New contribution to the aeroclimatology of North America.] *Geofísica Pura e Applicata*, 7(5/6):210-253, 1948. 14 figs., 5 tables, 27 refs. German and English summaries. **DLC**—Further study, based on earlier records and studies from kite and APOB soundings, using radiosonde records up to the war. Includes consideration of mean temperatures at various altitudes by latitudes, longitudes, anomalies of pressure affecting interhemispherical circulation, correlations between troposphere and stratosphere temperatures and height of tropopause with its temperature. (Same item as 4-84, April 1950,

MAB.) *Subject Headings:* 1. Pressure distribution 2. Polar anticyclones 3. Polar weather charts
—*Author's abstract.*

7A-165

551.506.7:629.7

Schütze, Rudolf, *Wetterflieger in der Arktis; Kriegererlebnisse des Flugzeugführers*. [Weather reconnaissance pilots in the Arctic; war report of a pilot.] Buenos Aires, Deutscher Verlag "El Buen Libro," 1950. 190 p. 19 photos (part col.), map on lining papers. DLC—A dramatic account of the experiences of Rudolf Schütze and colleagues during 4 years (1940-1943) of flying daily weather observation flights in the Arctic (Iceland, Jan-Mayen, Spitzbergen, Greenland). The material was taken from the diaries of the flyer, and was arranged and edited by Schwerdtfeger. Schütze had made over 1000 airplane ascents between 1935 and 1939 at Berlin-Gatow, over Central Europe, and, after the war started, over enemy territory in Norway and neighboring islands. *Subject Headings:* 1. Weather reconnaissance flights 2. Iceland 3. Jan-Mayen 4. Spitsbergen 5. Greenland
—M.R.

7A-166

551.509.3

U. S. Air Weather Service, Arctic Weather Central, *Local forecasting studies for selected Alaskan and Canadian stations*. April 1950. About 80 p. DAWS—Valuable collection of forecasting studies for 20 airfields in Alaska and western Canada. Typical synoptic conditions, local eccentricities in weather, and the general behavior of aerological elements are described. *Subject Headings:* 1. Airport climatology 2. Local forecast studies 3. Alaska 4. Western Canada.
R. Quiros.

7A-167

551.506.7:551.513:551.557(98)

Vederman, J. and Smith, C. D., *The winter mid-troposphere circulation near the North Pole*. *American Meteorological Society, Bulletin*, 31(6):197-205, June 1950. 7 figs., 13 refs. DWB—Observations at 500 mb made by Ptarmigan reconnaissance flights to North Pole used to compute mean temperature, height and wind fields for first quarter of 1949. Winds indicated by arrows on figures showing contours and isotherms over area 70°N to the pole and 160°E-80°W. (Same item as 4E-203, May, 1953, MAB.) *Subject Headings:* 1. Weather reconnaissance flights 2. Arctic air circulation 3. Upper air winds.—G. J. Evans.

7A-168

551.5(261)

Zubov, N. N., *V tsentre Arktiki*. [In the center of the Arctic.] Moscow, Izdat. Glavsevmorputi, 1948. 391 p. photos, charts, figs. DN-HO. Also: Arctic ice and the warming of the Arctic. Being Chapters VI and VII of "In the center of the Arctic," an outline of the history of Arctic exploration and of the physical geography of the central Arctic. Translated by E. Hopey. Ottawa, Defence Research Board, Dept. of National Defence, April 26, 1950. 72 p. photos, figs., maps. DLC—In this unique book, ZUBOV has done for the Arctic what SCHOTT (see 5A-23 and 5A-34, Jan. 1954, MAB) did for the geography and oceanography of the Atlantic, Pacific and Indian Oceans. The work is based on 35 years of experience in Arctic seas (in merchant vessels, from 1912, and on scientific expeditions in the 1920's and 1930's and on airplane reconnaissance trips over all the Soviet Arctic seas in the 1940's). He has written a basic text on oceanography or hydrography (see item 5A-41, Jan. 1954, MAB) and one on Arctic ice (see 5I-140). The present work contains chapters on the geography, history, exploration by the Russians; physical conditions (depth, submarine, magnetic and auroral conditions) and waters, ice and currents in ocean and atmosphere. The final chapter is on the "warming of the Arctic." A table of 30 Arctic expeditions (1607-1945) and their leaders, the farthest North lat., dates, etc. is appended. (Same item as 5I-157, Sept. 1954, MAB.) *Subject Headings:* 1. Arctic air circulation 2. Sea ice conditions 3. Arctic expeditions. I. Canada. Defence Research Board.—M.R.

1951

7A-169

551.509.317

§Barks, E. A., *Some effects of outbreaks of cold polar or Arctic air across north-eastern Canada*. *Canada. Meteorological Div., Circular 1949, Local Forecast Study*, No. 7, May 25, 1951. 2 p. chart. DWB—The intrusion of very cold air tongues causes great differences and even reversal of the winds between 1000 and 700 mb levels. Illustrated by chart for Jan. 31, 1951. (Same item as 4.6-65, June 1953, MAB.) *Subject Headings:* 1. Upper air winds 2. Aeronautical meteorology 3. Arctic invasions 4. Northeast Canada.—C.E.P.B.

7A-170

551.515.8:551.524.7(71)

Burbidge, F. E., *The modification of continental polar air over Hudson Bay*. *Royal Meteorological Society, Quarterly Journal*, 77(333):365-374, July 1951. 2 figs., 6 tables, 6 refs., 2 eqs. DLC

Recent exploration has shown that in mid-late winter Hudson Bay is almost entirely ice covered. Effect of this on climate is shown. Up to Nov. winds are markedly warmed by the time they reach sea, but there is no effect in Jan.-May. Snowfall on coast is heavy (33 in.) in Nov. but slight (4 in.) in Feb. There is a double cloud maximum Nov. and May. In summer warm air is cooled over the Bay. Changes of vertical structure of P_c air are described: in early winter lower layers become unstable, in mid winter there is no modification, and in summer only a thin surface layer is stabilized. (*Same item as 2.10-86, Oct. 1951, MAB.*) *Subject Headings: 1. Polar fronts 2. Upper temperatures 3. Hudson Bay.—C.E.P.B.*

7A-171 551.5(98)
Dorsey, Herbert Grove, Jr., *Arctic meteorology*. (In: *Compendium of Meteorology*. Boston, American Meteorological Society, 1951. p. 942-951. 7 figs., 2 tables, 24 refs.) DWB—An excellent treatise on the knowledge of air circulation processes in the Arctic. History of pressure development, discussion on concepts of circulation patterns and seasonal variations in vertical temperature distribution are presented in a concise but explicit form. An outline of meteorological problems in Arctic concludes the paper. *Subject Headings: 1. Arctic air circulation 2. Pressure distribution 3. Temperature gradient in Arctic 4. Arctic air masses.—N.A.S.*

7A-172 551.513(98/9)
Flohn, Hermann, *Die Zirkulation der Atmosphäre in den Polargebieten*. [The circulation of atmosphere in the polar regions.] *Polarforschung*, Ser. 3, 21(1):58-64, 1951. figs., 2 tables, 1 refs. DWB—A summary of results of recent abundant data from polar regions. Most important is the discovery of a cold pole in the free troposphere at about 75°N, 80°W which governs circulation up to 100 mb, and a secondary pole over Alaska. There is probably a similar but weaker symmetry over the Antarctic. Polar temperatures are tabulated up to 21 km. A possible connection between tropospheric asymmetry and magnetic poles is mentioned. Troposphere is colder in Antarctic than Arctic, due to weaker meridional exchange. Polar stratosphere temperature, glacial anticyclone and glacial inversion are briefly discussed. (*Same item as 3.3-108, March 1952, MAB.*) *Subject Headings: 1. Stratospheric temperatures 2. Cold poles 3. Inversions in Arctic.—E.P.B.*

7A-173 551.582.1:551.586.58(98)
Hare, Frederick Kenneth (*McGill Univ.*), *Some climatological problems of Arctic and subarctic*. (In: *Compendium of Meteorology*. Boston, American Meteorological Society, 1951. p. 952-964. 2 figs., table, 69 refs.) MH-BH—Definitions of the Arctic area according to various factors are made. Meteorological conditions favorable to ice formation are outlined and the problem of the influence of ice cover on air masses as well as the "glacial anticyclone" theory is discussed. (*Same item as 3.10-9, Oct. 1952, MAB.*) *Subject Headings: 1. Glacial anticyclone 2. Air masses.—J.A.S.*

7A-174 551.501.9(98,99)
Hobbs, William H., *First International Polar Year, 1882-1883*. (In: *Encyclopedia Arctica*, Vol. 7, *Meteorology and Oceanography*, [unpub. ms., photostat, July 1951, Pt. 5:1-5] bibliog. p. 5-5); Also: Seyd, Felizia, *Second International Polar Year, 1932-1933*. *Ibid.* [3 p. following p. 5]. Bibliog. p. 3. DWB—After a brief general history of Arctic expeditions, the locations of all polar stations maintained by the various participating nations during the first and second International Polar Years are listed. (*Same item as 5I-180, Sept. 1954, MAB.*) *Subject Headings: 1. Arctic weather stations 2. International Polar Year 1882-1883 3. International Polar Year 1932-1933. 4. Seyd, Felizia.—G.T.*

7A-175 551.501.9(98)
Illingworth, Frank, *North of the circle*. London, W. Hodge, 1951. 254 p. plates, refs. C—In Chap. XVIII (p. 218-236) the importance of Arctic weather stations, the location of many stations in Greenland and European or Asiatic Arctic, the history of Arctic weather service, Canada's Arctic network, weather flights from Fairbanks to the pole, early land expeditions and recent sea expeditions for meteorological purposes are described in some detail in a popular manner. Chap. XVIII (p. 237-244) deals with the melting of the Arctic ice due to warming. (*Same item as 5I-181, Sept. 1954, MAB.*) *Subject Headings: 1. Arctic weather stations 2. Weather reconnaissance flights 3. Arctic expeditions.—M.R.*

7A-176 551.5:016
Laursen, V. (*comp.*), *Bibliography for the Second International Polar Year, 1932-33*. Copenhagen, I.M.O. Temporary Committee for the Liquidation of the Polar Year, 1932-33, 1951. 253 p.

DWB—The references are arranged according to country and according to main subjects. The section on Aerology (p. 202-203) contains 112 refs. (*Same item as 4.1-28, Jan. 1953, MAB.*) *Subject Headings:* 1. Arctic bibliographies 2. International Polar Year 1932-1933.—*M.L.R.*

7A-177

551.506.7:629.1

Macht, Hans G., *Meteorologische und fliegerische Erfahrungen von deutschen Wettererkundungsflügen in der Arktis, 1941-1944.* [Meteorological conditions and flight experiences German weather reconnaissance flights in the Arctic.] *Polarforschung*, Ser. 3, 21(1):2-9, 1950, 20 refs. **DLC**—During World War II, regular flights were made by Germans in the polar region (northward from 70° lat.) to get weather information. On the basis of data obtained, the author describes the weather conditions encountered aloft and states the most important meteorological hazards. Summer sea fog may be 1000-1200 m thick over Jan Mayen and the middle North Sea. Strong showers were observed up to 4000 m. Heavy icing may occur up to 3000 m. *Subject Headings:* 1. Weather reconnaissance flights 2. Upper air data 3. Flying hazards 4. North Sea 5. Jan Mayen.—*N.A.S.*

7A-178

551.582.2(9)

*Pettersen, Sverre; Jacobs, Woodrow C. and Haynes, Benarthur C., *The meteorology of the Arctic Region.* (In: *Encyclopedia Arctica*, Vol. 7, *Meteorology and Oceanography* [unpublished photostat, July 1951. Pt. 1a-1d, 308 p. 32 tables, 56 refs.]) **DWB**—The most comprehensive collection of climatic information for the whole Arctic available up to this time in one place. Numerous tables are given for all climatic elements including also special data for the free atmosphere: upper winds, ceiling heights and visibility conditions. Furthermore, maps are presented for pressure and temperature and meridional cross sections for the free atmosphere are computed. Meridional profiles of the climatic elements show the characteristic features of the Arctic climate. The discussion, though highly competent, is given in elementary manner so that nonspecialists also can utilize the information. The cause of abnormal acoustical and optical phenomena in the Arctic is explained in some detail, as well as glaze and hoar frost, the inversions, humidity conditions and some synoptic features. (*Same item as 51-184, Sept. 1954, MAB.*) *Subject Headings:* 1. Upper air winds 2. Inversions in Arctic 3. Pressure distribution 4. Cloudiness 5. Arctic.—*A.A.*

7A-179

551.582.1(987.7)

Rae, R. W., *Climate of the Canadian Arctic Archipelago.* Toronto, 1951. 90 p. 15 figs., 1 table, 20 refs. **DWB**—Contains maps of average pressure over the Canadian Arctic for 4 months. Distance of isobars 2 mb. There is no list of coordinates and no explanations are given on what period the maps covered and what basic data are used. (For fuller abstract see item 4.5-196, May 1953, *MAB.*) *Subject Headings:* 1. Arctic synoptic charts 2. Canadian Arctic.—*A.A.*

7A-180

551.516(987.7)

*Rae, R. W., *Joint Arctic Weather Project.* *Arctic*, 4(1):18-26, May 1951. 4 figs., 2 tables. **DLC**—The three greatest advances in the Canadian Weather Service occurred 1) in the 1880's due to telegraphic reporting, 2) in the 1920's when radio reporting began and 3) in the 1947-50 period when the Arctic stations were established by joint Canadian and United States effort. Article describes the 5 stations (Eureka, Resolute, Isachsen, Mould Bay and Alert) and the history of their establishment; special problems encountered in the Arctic; the scientific program, which in addition to routine surface and upper air observation, includes measurement of the lapse rate in the first 75 ft above the ground and in permafrost or soil; and snow and ice investigations. Brief climatic notes, which include mean temperatures, rainfall, snowfall and temperature extremes for the first four stations are given. (*Same item as 2.11-3, Nov. 1951, MAB.*) *Subject Headings:* 1. Arctic weather stations 2. Lapse rates 3. Upper air data 4. Canadian Arctic.—*M.R.*

7A-181

551.513(98)

Rodewald, Martin, *Zirkulationsformen in der Arktis.* [Circulation forms in the Arctic.] *Polarforschung*, Ser. 3, 21(1):75-79, 1951. 2 tables, 10 refs. **DWB**—The new Arctic stations have shown that the pressure systems are more complex than was formerly thought. The deep cold air center is most often over Baffin Land, very rarely over Greenland. The normal position of the low at 5 km is also Baffin Land. Relation of temperature variations in polar cap to circulation in mid-latitudes discussed, also position and variations of polar high and the types of synoptic developments found. (*Same item as 3.5-145, May 1952, MAB.*) *Subject Headings:* 1. Arctic air circulation 2. Pressure distribution 3. Atmospheric centers 4. Baffin Island 5. Greenland.—*C.E.P.B.*

7A-182

551.555.3(988)

von Schatz, Heinrich, *Ein Föhnsturm in Nordostgrönland.* [A föhn storm in northeastern Greenland.] *Polarforschung*, Ser. 3, 21(1):13-14, 1951. **DWB**—According to E. G. TRILOFF

taken during the wintering on Shannon Island in 1943-44, a strong föhn storm was observed during Feb. 20-24, 1944. Temperature reached $+8.4^{\circ}$. Pilot balloon observations showed that at this time wind speed was 170 km/hr. *Subject Headings: 1. Föhn storms 2. Upper air winds 3. Shannon Island, Greenland.—N.A.S.*

7A-183 551.515.7
Wexler, Harry, *Anticyclones*. (In: *Compendium of Meteorology*. Boston, American Meteorological Society, 1951. p. 621-629. figs., 38 refs.) **DWB**—Anticyclones are shallow cold polar (due to surface cooling) or deep with warm troposphere and cold stratosphere. A few combine warm troposphere and cold stratosphere. Possible causes of warm type are: radiative cooling of troposphere (improbable); advection of cold stratosphere air (secondary factor); dynamic, either putting off ridges in low index westerly flow (blocking) or by mass convergence of cross isobaric winds. Author favors a combination of factors, especially stability and surface cold air. Structure of cold type (surface inversion) and forecasting motion (acc. ROSSBY) of a polar anticyclone and translocation into a dynamic type discussed. Anticyclonic weather briefly examined, including summer storms and Indian summer. Unusual anticyclone of Dec. 23-26, 1949, analyzed. (*Same item as 7A-14, May 1952, MAB.*) *Subject Headings: 1. Polar anticyclones 2. Weather types.—C.E.P.B.*

1952

7A-184 551.5:016:91.04(268)
Armstrong, Terence E., *The northern sea route; Soviet exploitation of the North East Passage*. Polar Research Institute, Special Publication, No. 1, 1952. 162 p. 6 plates, 7 maps, ports., 10 refs. **DLC**—Brief outline of ice conditions, fog and storms and a review of meteorological works, forecasting and hydrology are found in this general description of the North East Passage. Schematic map of 87 Arctic stations with a list showing the year when observations began is also included. (*Same item as 51-195, Sept. 1954, MAB.*) *Subject Headings: 1. Arctic networks 2. Literature reviews 3. North East Passage, U.S.S.R.—N.A.S.*

7A-185 551.515.71 551.515.7:523.74(798)
Bodurtha, Frank T., Jr., *An investigation of anticyclogenesis in Alaska*. *Journal of Meteorology*, 51:118-125, April 1952. 14 figs., table, 25 refs., 2 eqs. **DLC**—It is found that the Alaska-Northwestern Canada region is the one of most frequent anticyclogenesis (equal to or greater than 1/24 hr) on the Northern Hemisphere north of 40° N. Results are presented of a synoptic investigation of the predominant type of anticyclogenesis in Alaska. Certain features common to five cases investigated are noted and then depicted in a model of anticyclogenesis. These features indicate that: 1. Strong warm air advection occurs prior to and during the period of anticyclogenesis. A ridge aloft is associated with this warm-air advection. Ascending motions occur in the troposphere and lower stratosphere in this region of strong warm-air advection and result in the appearance of cold air aloft (200 mb). 2. In the subsequent region of anticyclogenesis in Alaska, there is a pre-existing isolated region of cold air, or a trough of low temperature, in the low and middle troposphere prior to intensification. (*Same item as 3.9-109, Sept. 1952, MAB.*) *Subject Headings: 1. Anticyclogenesis 2. Synoptic situations 3. Warm advection 4. Alaska.—From author's abstract.*

7A-186 551.587(98)
Flohn, Hermann, *Zur Aerologie der Polargebiete*. [On the aerology of the polar regions.] *Meteorologische Rundschau*, 5(5/6 and 7/8):81-87, 121-128, May/June and July/Aug. 1952. 5 figs., 10 tables, 53 refs. **DWB**—The lower atmosphere over polar regions is divided into a ground inversion with very steep negative lapse rate and much deeper main inversion layer of small gradient extending occasionally up to 4 km. This structure is especially marked with free radiation from snow covered ground—examples quoted. The mean stratosphere temperature at 200-50 mb levels decreases poleward during summer (but not winter) due to direct absorption of solar radiation. In second part, the rich aerological material for several Arctic stations, 1948-52, is summarized in terms of variability and extremes of temperature, surface to 100 mb, frequency distribution of height and amount of main inversion (Yakutsk), vapor pressure and relative humidity (to 500 mb), wind direction and constancy (to 12 km), and height of standard isobars. Atmospheric circulation is discussed in terms of the asymmetric polar whirl illustrated by mean height of 500 mb surface. Comparisons are made with Antarctic. (*Same item as 4.2-264, Feb. 1953, MAB.*) Also: Trans. of original German by A. M. Kröger in McGill Univ. Arctic Meteorology Research Group, Contract AF 19(604)-1141, Appendix to Status Report, No. 4, March 1955. 32 p. 28 tables, 4 figs., 53 refs. *Subject Headings: 1. Arctic topography 2. Inversions in Arctic 3. Stratospheric temperatures 4. Upper air winds. 5. Kröger, A. M. (trans.).—C.E.P.B.*

7A-187

551.510.53:551.7

Kondrat'ev, K. IA., *Teplovoi rezhim stratosfery*. [Thermal regime of the stratosphere.] *Priroda*, Moscow, 41 (7):62-68, July 1952. 5 figs., 2 tables, 4 refs. **DLC**—This general discussion on stratospheric temperature covers also the variations with latitude up to 80°N. Table 1 gives the height and temperature of tropopause in relation to the temperature at the earth's surface. (Same item as 4.8-76, Aug. 1953, *MAB*.) *Subject Headings*: 1. Tropopause in Arctic 2. Stratospheric temperatures.—N.A.S.

7A-188

551.513(6)

*†Pogossian, Kh. P., *Tsirkuliatsiia atmosfery*. [Circulation of the atmosphere.] Leningrad: Gidrometeoizdat, 1952. 52 figs., 5 tables, maps, 44 refs. **DLC**—This textbook on the general circulation of the atmosphere includes a rather thorough analysis of Arctic circulation in various seasons. Several polar maps of pressure distribution show absolute topography of 500 mb pressure surface, relative topography of 500 mb over 1000 mb, distribution of nonadvective temperature changes during 50 hrs, contrasts of the mean temperatures in the lower troposphere and frequency of cyclones and anticyclones in Jan. and July. Abnormalities in circulation are also treated. (Same item as 6.10-7, Oct. 1955, *MAB*.) *Subject Headings*: 1. General circulation 2. Abnormal circulation 3. Pressure distribution 4. Arctic synoptic charts 5. Arctic upper level charts 6. Textbook.—N.A.S.

7A-189

551.509.2(6)

U. S. Weather Bureau, *Daily Series, Synoptic Weather Maps. Part 1, Northern Hemisphere, Sea Level and 500 Millibar Charts. Part 2, Northern Hemisphere, Sea Level and Upper Air Data*. Jan. 1899—Latest seen Sept. 1952. **DWB**—Title varies: Jan. 1899—June 1939 as *Daily Synoptic Series, Historical Weather Maps, Northern Hemisphere, Sea Level*. 486 v. pub. 1943-44. (Jan. 1939—Dec. 1944 charts have not been prepared; Jan.—Sept. 1945 in preparation by U. S. Air Weather Service); Oct. 1945—Dec. 1948, as *Northern Hemisphere, Sea Level and 500 Millibar Charts*, (these were published by the U. S. Air Weather Service, May 1948—Dec. 1948 charts now at the printer); Jan. 1949, U. S. W. B. resumed publication of the series on a current basis, and from Jan. 1949—Dec. 1951, issued the series as *Daily Series, Synoptic Weather Maps, Northern Hemisphere, Sea Level and 500 Millibar Charts with Synoptic Data Tabulation*. Jan. 1952 above title and part 1. (Same item as 51-207, Sept. 1954, *MAB*.) *Subject Headings*: 1. Synoptic charts 2. Northern Hemisphere.—M.L.R.

1953

7A-190

551.509.2

[Belmont, A. D.], *Preliminary forecasting study of Thule, Greenland*. U. S. Air Weather Service, *Technical Report*, 105-106, March 1953. 5 p. **DWB**—A series of notes prepared in 1949 on local forecasting for Thule, Greenland and possible application to Eureka, N.W.T. and other stations in the Canadian Archipelago. Especial emphasis is placed on forecasting foehn winds and mountain winds. The former occur when winds from 10 to 30 thousand ft are strong from NE or SE and SW and are absent when winds are westerly or are weak from the easterly directions below 30,000 ft. If strong from E at or above 30,000 the winds may become strong enough in lower levels after 12 or 24 hrs. "Horseshoe highs" with a trough of low pressure W or SW of Thule also precede mountain winds (Katabatic winds which are shallow but may be violent). Finally, rules are presented for forecasting precipitation and winds [usually orographic up-slope (westerly) flow up to 12,000 ft]. *Subject Headings*: 1. Local forecast studies 2. Thule, Greenland 3. Canadian Archipelago. I. U. S. Air Weather Service.—M.R.

7A-191

551.515.13 551.515.7

*Berry, F. A., Owens, G. V. and Wilson, H. P., *Arctic track charts*. (In: American Meteorological Society [and] Royal Meteorological Society, *Proceedings of the Toronto Meteorological Conference, Sept. 9-15, 1953*, pub. 1954. p. 91-102. 8 figs., 6 tables, 10 refs.) **DWB**—From twice daily charts 1944-51 (Eurasia mostly 1948-51) track charts were compiled north of 50°N. Cyclone and anticyclone tracks are shown for four seasons, including relative frequency and speed, and major features discussed. *Subject Headings*: 1. Cyclone tracks 2. Anticyclone tracks.—C.E.P.B.

7A-192

551.506.7(79)

*Crary, A. P., *Annual variations of upper air winds and temperatures in Alaska from acoustic measurements*. *Journal of Meteorology*, 10(5):380-389, Oct. 1953. 4 figs., 3 tables, 7 refs., eq. **DLC**—Central recording site was set up near College, Alaska using five microphones in an array 250×250 m. Explosive charges have been fired at Minchumina, Bettles, Ft. Yukon and near Johnson and Robertson Rivers, and a series of monthly acoustical tests have been made during a year.

Summary of observations is presented in tables. Graphs show the vertical distribution of temperature and wind up to 55 km. Results of these tests show that a temperature maximum of 22°C exists at about 47 km from June to Aug., with the winds from the easterly direction between 4 and 47 km averaging about 10 m/sec. During winter months higher average winds prevailed from westerly-northerly directions, with the maximum temperatures probably below 10°C. (Same as 5.3-226, March 1954, MAB.) *Subject Headings:* 1. Acoustical sounding data 2. Temperature gradients in Arctic 3. Upper air winds 4. Stratospheric temperatures 5. College, Alaska.—N.A.S.

7A-193 551.513:551.551:551.510.52/3
Defant, Freidrich, *On the mechanism of index changes*. Chicago Univ. Report of meteorology Contract N60ri-20, Task Order II, Project NR082003 (unnumbered) Technical Report, 1953. 31 p. 38 figs., table, 13 refs. DWB—A substantial study showing for selected cases temperature field (500 mb), the position of the jet stream, isopleths of geostrophic wind (500 mb) versus latitude, temperature isopleths versus height, meridional height cross sections for temperature and temperature changes, tropopause variations etc. during periods of high and low index in the Northern Hemisphere. Conditions over the polar cap and the extension of the circumpolar jet within the jet stream belt are analyzed, and possible tropical impulses are discussed. The height of the Arctic tropopause seems to have a relation to the intensity of the jet stream. (Same as 5D-248, April 1954, MAB.) *Subject Headings:* 1. Arctic air circulation 2. Tropopause in Arctic 3. Jet stream 4. Northern Hemisphere.—A.A.

7A-194 551.513(98)
[Stinchfield, Phillip R.], *Typical progress of weather formations over Alaska*. *Alaskan Science Conference, 2nd, Mt. McKinley National Park, Sept. 4-8, 1951*. Proceedings, p. 270-272, pub. 1953? B—Revision of his original paper, by Alaskan Air Command, U. S. Air Weather Service. A general statement of movements of cyclones and anticyclones from the Aleutians or Siberia into the Gulf of Alaska or the interior valleys respectively. The difference between the effects of a high index type (Jan. 1951) and a low Index type (Jan. 1950) emphasized. In the former case storminess is great along the coasts but temperatures of -50°F occurred for 10 days in a row. In Jan. 1950 there was almost no storminess or extreme conditions. *Subject Headings:* 1. Circulation anomalies of air mass movement 3. Cyclone tracks 4. Alaska.—M.R.

7A-195 551.509.21
U. S. Bureau of Aeronautics (Navy), *Arctic weather maps*. Device 22-DD-12. Norfolk, Va. 1953. 102 p. Mostly charts. DWB—Daily Arctic surface weather maps, July 1949-June 1950, adopted from U. S. W. B. *Daily Series Synoptic Weather Maps*. There is a brief discussion of temperature and pressure and air mass and frontal characteristics in the Arctic by seasons. Included are monthly maps of 8-year mean cyclone and anticyclone tracks, and monthly "reference charts" of land and sea surface isotherms and limits of sea ice. Also its: *Arctic Weather Maps (Supplementary 500 mb Charts)*. 74 p. 1953? all charts. DWB. *Subject Headings:* 1. Arctic synoptic charts 2. Arctic. I. Berry, F. A.—R. Quiros.

7A-196 55.03:06(09) 551.506.5(00)
Vassy, Étienne, *L'Année Géophysique Internationale 1957-1958*. [The International Geophysical year 1957-58.] *La Météorologie*, Paris, 4th Ser., No. 29:50-60, Jan./March 1953. French, English and Spanish summaries p. 50. MH-BH—This is a detailed outline of work done during the past International Polar Years, and the program planned for the 1957-58 "Geophysical Year." Actions occupied in 1882-83 and 1932-33 are listed. Observations and investigations in fields of geology, magnetism, auroras, rocket soundings, ozone, cosmic rays, aerology, synoptic meteorology and astronomy networks recommended, etc. are also listed in outline form. Work will not be limited to high latitudes. (Same item as 5I-224, Sept. 1954, MAB.) *Subject Headings:* 1. International Polar Year Year research 2. International Geophysical Year program 3. International Polar Year, 1882-1883 4. International Polar Year, 1932-1933 5. History of Polar Year.—M.R.

7A-197 551.513(98)
*Vitvitskiĭ, G. N., *Klimaty Severnoĭ Ameriki*. [Climates of North America.] Moscow, Izdat. Geografiz. 1953. 287 p. 55 figs., 24 tables, 291 refs. DLC—In the chapter titled "Arctic Zone" the features of atmospheric circulation in American Arctic regions are described. The lowest temperature of 5000 m layer in Jan. was -33° (by Pogossian), which doesn't differ much from the surface temperatures of Canadian Archipelago. Winter storms are usually following the passage of cyclones. For fuller abstract see item 5.11-9, Nov. 1954, MAB.) *Subject Headings:* 1. Arctic air circulation 2. Winter storms 3. Upper air temperatures 4. North American Arctic.—N.A.S.

1954

7A-198

551.509.5:551.3111

Bates, Charles C.; Kaminski, Henry and Mooney, A. Russel, **Development of the U. S. Navy ice forecasting service, 1947-1953, and its geological implications.** *New York Academy of Science Transactions*, 16(4):162-174, Feb. 1954. 8 figs., 11 refs. **DLC**—Ice forecasting activities in various parts of the world, especially in the Soviet Union, are reviewed briefly and the development of ice forecasting in the U. S. initiated by the U. S. Hydrographic Office is described in detail. The introduction of aerial ice reconnaissance in joint cooperation with Canada, the standardization of ice observing and forecasting program, and actual instances of ice forecasting are described. Maps show distribution of drift ice in Eastern Canadian and Greenland waters during April 1953, mean 700 mb pressure chart for northern hemisphere during April 1953, and distribution of sea ice in Alaskan waters in Aug. 1953. A list of people engaged in the ice forecasting program of the U. S. Hydrographic office is given. **Subject Headings:** 1. Sea ice forecasting 2. Baric topography 3. Northern Hemisphere.—*I.L.D.*

7A-199

551.524.7(9)

*Belmont, A. D., **Summary of Ice Island "T-3" upper air temperature data, 1952-53, and comparison with other polar station data.** California. Univ. Dept. of Meteorology, Contract A-19(122)-228, Scientific Report, No. 4, June 1954. 39 p. 22 figs., 11 tables, 4 plates, 25 refs. **MH BH**—Seven months of the 1952-53 winter radiosonde temperature data from Ice Island, "T-3" are summarized. The processing of the data is described and various aspects of the temperature distribution such as troposphere height, stratosphere temperature, mean troposphere inversion and surface temperature distribution and winds are discussed. The "T-3" temperature data are compared with similar data available from other parts of the Arctic, namely Eureka, Thule, Resolute Alert, BW-1 and Ptarmigan drop sondes and with data from Little America in the Antarctic. "T-3" Jan. temperatures were found warmer than at other polar stations except Ptarmigan (82.5-90°N). polar mean temperature patterns, comparison of Jan.-July arctic temperatures, various aspects of monthly temperature variation, and the comparative atmospheric temperature characteristics of the Arctic and Antarctic are considered. An outline of future research, photographic reproduction of soundings and graphs of temperature distribution are presented. **Subject Headings:** 1. Upper air temperatures 2. Stratospheric temperatures 3. Inversions in Arctic 4. Arctic ice islands 5. Arctic Ocean.—*I.L.D.*

7A-200

551.513(98)

*Dzardzevskii, B. L. and Monin, A. S., **Tipovye skhemy obshchei tsirkulatsii atmosfery severnom polusharii i indeks tsirkulatsii.** [Standard charts for general atmospheric circulation of the Northern Hemisphere and circulation index.] *Akademiia Nauk SSSR, Izvestiia, Seriya Geofizicheskaya*, No. 6:562-574, 1954. 8 figs., 2 tables, 11 refs. **DLC**. English trans. as **Typical schematics of the general circulation of the atmosphere in the Northern Hemisphere and the circulation index.** 16 p. issued as [anonymous translation] No. 602. **DWB**—Using observations taken by Russian expeditions "Severnyi Polius" and "Sedov," the author analyzed synoptic situations in Arctic and recognized several types of cyclonic activity. Schemes of atmospheric circulation and climatic patterns of pressure distribution show the changes in position of frontal zones from winter to summer. Synoptic conditions during 19 flights in high latitudes are discussed and illustrated by synoptic charts. **Subject Headings:** 1. Arctic air circulation 2. Synoptic situations 3. Cyclonic activity 4. Pressure distribution 5. Fronts 6. Arctic flights 7. Northern Hemisphere.—*N.A.S.*

7A-201

551.509.21(98)

*Örving, Svenn, **Glacial-meteorological observations on ice caps in Baffin Island.** *Geografiska Annaler*, Stockholm, 36(3/4):193-318, 1954. 44 figs., 58 tables, bibliog. p. 312-318, eqs. **DWB**—This comprehensive research includes also a general outline of weather conditions in the Cumberland Peninsula during 1952-53 and data on wind regime, cloudiness, fog and other synoptically important characteristics. Pressure and wind speed variations are shown on graph and seven synoptic charts are reproduced to show the prevalent situations and pressure pattern during the summer months in 1952. **Subject Headings:** 1. Synoptic situations 2. Pressure distribution 3. Baffin Island expeditions.—*N.A.S.*

7A-202

551.513.1:550.385

*Pécely, György, **A szubtrópusi maximumok regenerálódásának kérdéséhez.** [On the regeneration of subtropical high.] *Időjárás*, 58(2):65-71, March/April 1954. 7 figs., 5 refs. Hungarian, Russian and French summaries p. 65. **DLC, MH-BH**—This study contains the following Northern Hemisphere charts (centered around the Arctic): (1) Summer and winter types of high pressure system, (2) six charts showing the pressure distribution of March 1-12, 1933, (3,4) anti-

one tracks in the Azores (March 1933, June 1929) and Pacific (March 1930, June 1934) areas, and state of polar air masses between 200 and 300 mb as affected by a magnetic storm in winter 1934. A graph shows pressure variations at 60°N lat., 100°W long. as functions of magnetic disturbances. These figures are offered in support of author's description of the mechanism of polar air eruptions: "There is evidence of a correlation between the outbreak of polar air and the muscular radiation of the sun. During magnetic storms accompanying corpuscular radiation there is an increase of temperature at altitudes between 9 and 12 km above the North Magnetic Pole, which spreads out from the pole in the form of concentric temperature waves. At the same time there is a pressure increase at ground level. This pressure increase may cause the cold air to break from the Arctic Basin where it was concentrated." It is also shown how such outbreaks stimulate regeneration of subtropical and particularly of Azores high-pressure situations. *Subject Headings:* Arctic invasions 2. Pressure distribution 3. Magnetic storm theory.—G.T.

7A-203 551.506.7(98)
Poage, W. C., Jr., *The dropsonde record from Alaska to the North Pole, April 1950-April 1952.* California. Univ. Dept. of Meteorology, Contract AF 19(122)-228, Arctic Meteorological Research, Scientific Report No. 2, June 1954. 52 p. 9 figs., 2 tables, 8 refs. DWB—A tabular, graphic and verbal summary and evaluation of dropsonde data obtained by the U.S.A.F. between Alaska and the North Pole from April 1950-April 1952. Monthly means are compared with similar data for Point Barrow and Alert, Canada, and with inversion data of SVERDRUP (Maud expedition). The cold pole is shifted to 85°N in July and Sept., though in April and in winter (1951-2) it is at the pole. All 696 soundings were summarized. Cross sections up to 500 mb level show that Alaskan data compare very closely with Alert data and though colder than Barrow, parallel Barrow's data month by month, and the same is true of inversion data when compared with SVERDRUP's, though SVERDRUP's records showed much sharper inversion maxima than do the Ptarmigan data. Maxima of inversion intensity come in winter and summer, as SVERDRUP predicted. Secondary maxima come in spring and autumn. Cross sections from Pole-Anchorage show relation of upper air isotherms and geopotential heights over Pack-Ice to those over the rugged terrain of Alaska, for various seasons. Soundings were made north of 72.5° and usually at several places over the permanent Pack Ice on each trip. This is the most complete upper air climatological analysis for the Arctic Seas yet published. *Subject Headings:* 1. Weather reconnaissance flights 2. Inversions in Arctic 3. Upper air temperatures 4. Pt. Barrow-North Pole air route.—M.R.

7A-204 551.501.9:551.508.222
Schmitt, W., *Russian radiosonde station at the North Pole.* South Africa. Weather Bureau, *Weather Letter*, No. 67:3, Oct. 31, 1954. table. DWB—Description of Soviet ice-floe station at 78°M, 10°E sending daily synoptic and radiosonde observations, which appear since Aug. 4, 1954 on the Daily Weather Charts at Frankfurt on Main. Problems of housing and reporting (at North Pole direction must be coded differently) and some details of weather conditions are noted. Table shows mean maximum and minimum 500/1000 mb geopotential for Aug. and Sept. 1954 for this station. *Subject Headings:* 1. Soviet ice floe stations 2. Arctic networks 3. North Pole.—M.R.

7A-205 551.509.3(211.1)
Toyll, Matthe . . . *Forecasting problems in the Arctic with special reference to Northern Greenland.* [In: American Meteorological Society and Royal Meteorological Society, *Proceedings of the Toronto Meteorological Conference*, Sept. 9-15, 1953. pub. 1954. p. 74-77.] DWB—Forecasting technique for aviation at Thule, N. Greenland, is described. Violent surface winds are the main hazard, fog the next, and conditions for these are summarized. *Subject Headings:* 1. Local forecast studies 2. Arctic flights 3. Greenland.—C.E.P.B.

7A-206 551.509.21
U. S. Air Weather Service, *Mean contours, isotachs, and isotherms over the Northern Hemisphere at the 300-, 200-, and 100-mb levels, Jan., Feb., July and Aug. 1949.* No. 7 in a series of background reports for AWS Manual 105-50. Its AWS Technical Report, No. 105-128, Nov. 1954. 53 cm. 45 p. numerous charts, 6 tables. DWB—*Subject Headings:* 1. Upper air temperatures 2. Arctic upper level charts 3. Northern Hemisphere.

7A-207 551.501.9(98)
U. S. Weather Bureau, Arctic Operations Project, *Arctic weather stations.* *Weather*, 9(5):137-140, May 1954. photo. MH-BH. Also: Inglis, Peter, *Arctic weather men.* *Heartland*, Wash., D.C., 1(1):22-27, Summer 1953. diagr., photos. DLC—The first article describes installation, operation and observation program at joint Canadian-U. S. stations at Thule, Eureka, Alert, Resolute Bay, Isachsen, Mould Bay and Nord. References are made to climate. The second is an account of the author's visit to Isachsen, Ellef Ringnes Island, during a yearly spring re-supply operation.

He was particularly interested in the personnel at the station and gives several thumb-nail sketches to illustrate why men choose appointment to Arctic weather stations. A chart shows the location of Isachsen and the other 4 stations in the Canadian Arctic. (Same item as 51-227, Sept. 1955, MAB.) *Subject Headings:* 1. Arctic weather stations 2. Canadian Arctic. I. Inglis, Peter. C.E.P.B., M.L.R.

7A-208

551.515

†Wasko, Peter E., *Pressure and temperature variations over the centers of typical migratory anticyclones.* *American Meteorological Society, Bulletin*, 35 (1):26-32, Jan. 1954. 10 figs., 14 refs. **DLC**—From twenty years of Jan. and Feb. North American trajectories of migratory anticyclones, four typical groups were found. Examples of these types were studied with respect to the temporal variations of the pressure and temperature at standard levels in a vertical column of the atmosphere over the centers of the migratory anticyclones. Certain characteristic features of these variations are summarized. (Same item as 6.4-162, April 1955, MAB.) *Subject Headings:* 1. Migratory anticyclones 2. Anticyclone classification 3. Pressure distribution 4. Temperature variations. *Author's abstract.*

1955

7A-209

551.513:016(98.99)

†Bonnlander, B. H. and Belmont, A. D., *Bibliography on polar atmospheric circulation.* McGill Univ. Arctic Meteorology Research Group, Contract AF 19(604)-1141, Appendix 1 to Status Report, No. 5, June 1955. unpagged. 440 items. **DWB**—This excellent collection of abstracts and references to literature and data sources on the circulation of the polar regions begins with a section on *Especially Significant Papers*—the first two of the 31 being reports on *Arctic Meteorological Surveys* by BELMONT. Additional references (305) grouped by periods (before 1930, 1930-38, 1939-45, 1946-49 and 1950-54), contain a fairly exhaustive coverage of available literature. A third section on *Expeditions* contains about 85 references to over 50 expeditions from 1873-1955. Section IV covers 15 data serials from various countries, and Section V, 6 major bibliographies from which some material has been drawn. References are made to MAB abstract number in many cases rather than copying the abstract. (Same item as 6.10-29, Oct. 1955, MAB.) *Subject Headings:* 1. Arctic bibliographies.—M.R.

7A-210

551.5:061(98)

Gusev, A. M., *Arkticheskie issledovaniia morskogo gidrofizicheskogo instituta.* [Arctic investigations of the Maritime Hydrophysical Institute.] *Akademiia Nauk SSSR, Vestnik*, No. 2:39-43, 1955. table, map. **DLC**—A brief survey of the knowledge on the regime of pressure centers: Canadian maximum, Iceland minimum, East-Siberian maximum and the Aleutian minimum. Importance of the study of Canadian maximum and the pressure field in the Arctic region which is known as "the pole of relative inaccessibility" is emphasized. A drifting station is working now in this region. On the drifting station "North Pole 3" detailed aerological observations up to 3000 m have been organized which will provide the data for investigation of the laws governing the formation and vanishing of inversions. Basic topography of the Northern Hemisphere according to recent investigations shows that the hypothetic "polar cap" is actually non-existent and instead two Arctic pressure centers of cold air are found, one in Verkhnoiansk region, the other over North Canada. *Subject Headings:* 1. Arctic pressure centers 2. Baric topography 3. Inversions in Arctic 4. Arctic ice floe stations 5. Soviet Arctic.—N.A.S.

7A-211

551.509.33:551.513:551.515.13

§Forsdyke, A. G., *Depressions crossing Labrador and the St. Lawrence basin.* *Great Britain. Meteorological Office, Professional Notes*, 7(113), 1955. 44 p. 22 figs., 3 tables, 5 refs. **DWB**—Depressions traversing eastern N. America may either move on eastward or turn north or northwest and stagnate; the latter are influenced by Greenland. The two types occur in spells of a few days to a week, and tend to be associated with characteristic hemispherical upper flow patterns. The stagnating depressions are associated with slow troughs of large amplitude, but the characteristic pattern is often not reached until nearly the end of the spell and is not a useful indication for medium range forecasting. In most cases the surface and upper patterns evolve together. Differences in development of individual depressions may depend on details of the thermal structure. The paper is illustrated by numerous 500 mb and surface hemisphere charts. *Subject Headings:* 1. Cyclone tracks 2. Extended forecasting 3. Labrador, Canada.—C.E.P.B.

7A-212

551.506(268)

Meyer, Hans Klaus, *Das Wetter in der Nähe des Nordpols.* [Weather near the North Pole.] *Meteorologische Rundschau*, 8(1/2):35-39, Jan./Feb. 1955. 5 figs., 5 tables. **MH-BH**—A summary of the meteorology of the North Pole is followed by plots of the daily weather in August through

umber [year not stated; probably 1954] radioed by the latest Russian ice-floe station near the
a Pole (89.7 to 88.3°N) and monthly comparisons with another ice floe station in 78-81°N,
179°E (For Pt. 2, see 7A-222, Jan. 1956, MAB.) *Subject Headings:* 1. North Pole weather
ctic ice floe stations 3. North Pole.—C.E.P.B.

7A-213 551.509.33:511.311.18
Schell, I. I., Arctic ice and weather relationships. *Royal Meteorological Society, Quarterly
nal*, 81(347):96-97, Jan. 1955. 5 refs. DWB—The effect of a more southerly extension of
ice in the N. Atlantic, displacing cold air and water limits and storm tracks southwards, is
erated by a number of correlations with subsequent weather. *Subject Headings:* 1. Seasonal
asting 2. Storm tracks 3. North Atlantic.—C.E.P.B.

7A-214 551.506.5:551.465(268)
Täubert, H., Über neue sowjetische Forschungen und Entdeckungen in der Zentralarktis. [On
Soviet investigations and discoveries in the Central Arctic.] *Petermanns Geographische Mit-
ngen*, 99(1):70-77, 1955. 9 figs., 2 charts. DLC—A review of investigations made in the
ic, especially since World War II, by drifting ice floe stations. Meteorological conditions,
onic activity and air masses are treated in Pt. 3. *Subject Headings:* 1. Arctic expeditions 2. Cy-
c activity 3. Air masses 4. Soviet ice floe stations 5. Central Arctic.—N.A.S.

7A-215 551.501.6/7
U. S. Air Weather Service, Mean cross sections along 80°W (no. 5 in a series of background
rts for AWS Manual 105-50). Its *Technical Report*, 105-115, Feb. 1955. 39 p. 15 figs.,
ples, 35 refs. DWB—Intended for use by forecasters in studying the mean isotherms, isotachs
onal flow and tropopauses for sections up to 31 km (10 mb) along 80°W from North Pole to
tor. Separate cross sections for Jan., April, July and Oct. based on 4 years (1948-1951) of data.
therms and tropopause are based on data from 17 raob stations. Besides 4 zonal flow and 4
perature cross sections there is a discussion of data, methods and comparison with previous
ts, as well as methods for determining mean, true mean, sounding mean and extrapolation.
opopause is included in a section on various types, movements and structure of tropopause. The
st mean tropopause is in April in Arctic. *Subject Headings:* 1. Tropopause in Arctic 2. North
rica 3. Canadian Arctic.—M.R.

SUPPLEMENTARY MATERIAL

7A-216 551.311.181(268):551.542
Brooks, C. E. P. and Quennell, Winifred A., The influence of Arctic ice on subsequent dissa-
tion of pressure over the eastern North Atlantic and western Europe. *Great Britain. Me-
ological Office, Geophysical Memoirs*, No. 4, 1928. 36 p. 18 figs., 36 tables. DLC—Correlates
n Greenland Sea, Iceland, Barents Sea and Kara Sea with subsequent pressure distributions at
umber of stations including Jacobshavn, Greenland and Vardö, Norway and various factors
cting ice conditions. *Subject Headings:* 1. Arctic sea ice 2. Pressure distribution 3. North
ntic 4. Western Europe.—C.E.P.B.

7A-217 551.506.5(268)
Sverdrup, Harald Ulrik, Norwegian North Polar Expedition with the "Maud" 1918-1925.
ntific results. Vol. III, Meteorology, Pt. II, Tables. Bergen, Geofysisk Institutt, 1930. 527 p.
B—Pilot balloon observations and details of individual ascents, many of which exceeded 5 km.
ation of each ascent given in tables—(approximately 65-70°N, 150-170°E). (Same item as
41, May 1953 and 51-47, Sept. 1954, MAB.) *Subject Headings:* 1. Maud Expedition, 1918-1925
pper air data 3. Arctic.—G. J. Evans.

7A-218 551.509.3
U. S. Office of Naval Operations, Guide to Arctic forecasting, Pt. 1. Its NAVAER 50-1P-505,
nted Dec. 1, 1953. 70 p. 107 figs., 4+3 tables, 7 refs. DWB—Climatological Summaries
r, through March for the Aleutian Islands, Bering Sea and Western Alaska areas are presented.
istical summaries, based on a two-year sample, of various weather elements and their probability
occurrence at Weather Ship "Sugar" are set forth in the form of a contingency table. Two
ormal weather patterns with the associated synoptic climatology for the Arctic area are included
a discussion of the techniques used in developing these types. Track charts of high and low-
ssure areas, and comments relative to their value as an aid in forecasting, are presented for the
thern Hemisphere Arctic area. Discussions of some specific forecasting techniques applicable

to the Arctic area are included. (Same item as 6.10-13, Oct. 1955, MAB.) *Subject Headings*: 1. Weather forecasting 2. Arctic weather forecasting 3. Climate of Arctic 4. Arctic.—*Author abstract*.

7A-219

Belmont, A. D., **Arctic meteorological research**. Calif. Univ. at L. A. Dept. of Meteorology, Contract AF 19(122)-228, Final Report, Oct. 1950-June 1954, pub. June 1954. unpag. figs., tables. Summaries of the 6 Scientific Reports issued under this contract. **MH-BH**—Contents of this Final Report are: No. 1, Belmont, A. D., Apparent diurnal and seasonal variations of upper air temperature at Narsarsssauk, Greenland (same item as 5.11-113, Nov. 1954, MAB.). No. 2, Poage, W. C., Jr., The dropsonde record from Alaska to the North Pole, April 1950-April 1952 (same item as 7A-203, Jan. 1956, MAB.). No. 3, Translations of two Dzerzezevskii papers (for abstract from the original Russian of the first paper, see 7A-123, Jan. 1956, MAB; for abstract from the original Russian of the second paper, see 2.7-78, July 1951 and 7A-117, Jan. 1956, MAB.) No. 4, Belmont, A. D., Ice Island T-3 temperatures and comparison with other polar stations (see 7A-19, Jan. 1956, MAB.). No. 5, Translated abstracts from "Reports of the drifting station 'North Pole'": Vol. 1, Pts. 1-5; Vol. 2, Pts. 1-2 (For abstracts from the original Russian, see 1-127, Jan. 1950 and 51-137, Sept. 1954, MAB.). No. 6, Benster, C. D., Translation of "The circulation of the atmosphere in the central polar basin" by B. L. Dzerzezevskii translated from "Reports of the drifting station 'North Pole,'" Vol. 2, Pt. 3 (for abstract from original Russian, see 7A-116, Jan. 1956, MAB.). *Subject Headings*: 1. Upper air temperature variations 2. Pressure distribution 3. Arctic.

551.5(9)

7A-220

Wilson, H. P., **Test of a grid method of forecasting the motions of lows at 500 millibars in Arctic regions**. Canada. Meteorological Div., Cir-2539 TEC-194, Oct. 4, 1954. 8 p. figs., 3 tables, 2 refs. **DWB**—**RIEHL**'s grid method for forecasting the 24-hr motions of hurricanes which is "essentially a method for measuring mean zonal and meridional geostrophic wind components over an area around the hurricane roughly around 1000 mi sq" was modified into a square grid so that "the gradients measured are parallel to the great circles at right angles to each through the center of the low and not strictly zonal or meridional components." It was applied to the Arctic, where air masses are predominantly barotropic, and tested with 500 mb charts of the Historical Weather Map series for Jan.-Sept. 1951. The method developed for the Arctic is described and the assumptions and errors are discussed. This grid method was found to give satisfactory forecasts about two-thirds of the time. (Same item as 6.11-152, Nov. 1955, MAB.) *Subject Headings*: 1. Numerical forecasting 2. Forecasting techniques 3. Forecasting cold lows 4. Arctic weather forecasting 5. Arctic.—*I.L.D.*

551.509.3E

7A-221

Heastie, H., **Average height of the standard isobaric surfaces over the area from the North Pole to 55°N. in January**. Great Britain. Meteorological Research Committee, M.R.P. 918, May 31, 1955. 6 p. 11 charts, ref. Mimeo. **DWB**—A revision of **Upper winds over the world** (see 10-117, Oct. 1950, MAB.) was begun by constructing circumpolar charts for standard pressure levels for Jan. 1949-53. The sources of data are given and method of construction described. Charts give contour heights (gp.d.m.) for 700, 500, 300, 200, 150 and 100 mb and intervening thicknesses. (Same item as 6.11-272, Nov. 1955, MAB.) *Subject Headings*: 1. Relative topography 2. Upper air wind charts 3. Arctic.—*C.E.P.B.*

551.557.2:551.54

7A-222

*Meyer, H. K., **Das Wetter in der Nahe des Nordpols, II Teil**. [Weather near the North Pole Pt. 2.] Meteorologische Rundschau, Berlin, 8(7/8):117-122, July/Aug. 1955. 9 figs., 2 tables. **DLC**—In Jan. most of the Arctic Ocean froze and weather conditions became steady. The cold pole was often near the geographical pole. Weather conditions from Jan. through July are described with daily plots of pressure, temperature and wind speed. The monthly means of pressure and temperature for Aug. to July are plotted and frequencies of wind force, cloud, rain, snow, visibility, dew point and 3 hr pressure change are tabulated. The drift of the polar station is plotted and compared with winds. (For Pt. 1, see 7A-212, Jan. 1956, MAB.) *Subject Headings*: 1. Weather reports 2. North Pole.—*C.E.P.B.*

551.506(268)

7A-223

U. S. Bureau of Aeronautics (Navy), **Aids to forecasting for Arctic and cold weather operations**. Project AROWA (TED-UNL-MA-501.16), Second Progress report, 1955? 8 p. **DWB**—A description of the activities of the project during the period 1 Jan. 1953-30 April 1953 is presented. It comprises an investigation of all known forecasting rules and local weather peculiarities in the Arctic, in particular the Aleutian Islands, Bering Sea, Bering Strait and Beaufort Sea, the Canadian

551.509(98)

Elpelago, Baffin Bay and Davis Strait. The personnel and administration are covered and the results of the present research which includes the development of "Arctic Weather Types," preparation of MULTANOVSKII type chart, etc. and the contents of technical report to be published 30 June are outlined. *Subject Headings:* 1. Arctic meteorology 2. Weather forecasting 3. Project WA 4. Arctic.—I.L.D.

7A-224 551.509.2
U. S. Weather Bureau, **Daily Series Synoptic Weather Maps, Northern Hemisphere, 1000 mb and 50 millibar charts, Jan. 1953.** pub. 1955? Publications consulted, p. 1. unpagged. Most entirely charts. DWB—This experimental series comprises analyzed daily 100 and 50 mb synoptic charts for 7 months of 1953 (Jan.–May, July and Oct.) for the entire Northern Hemisphere, based on all available usable published radiosonde data, a few telegraphic reports from areas where no published or verified data could be obtained and extrapolation to areas where no data were available at all. Heights are given to 400 ft intervals and isotherms for every 5°C. Wind data were scarce. Heights of the 100 mb level range from 50,000 to 55,000 ft and for the 50 mb level from 64,000 to 68,000. A deep low centered over the polar regions, especially prevalent from the Atlantic to the Central Siberian Arctic, giving strong gradients from WSW to NNW, respectively, depending on central location of this cold low, is a daily feature of the winter charts. Temperatures at 100 mb run as low as -70° or -75°C in the SW quadrant of this semipermanent system. On the other hand, central Canadian stratospheric cyclones are warm (-50°C) as a rule, with colder air to the S (-65° to -70°C) over Mexico. These are the first known published analyses for the stratosphere over the entire Arctic. On the whole, it is a commendable job—isohypses are easily read and identified, isotherms not so easily deciphered, and data entered at actual stations very difficult to read. *Subject Headings:* 1. Daily synoptic charts 2. Stratospheric synoptic charts 3. Arctic stratosphere charts 4. Northern Hemisphere upper air charts 5. Northern Hemisphere Arctic.—M.R.

7A-225 551.589(98)
Hare, F. Kenneth, **Weather and climate.** (In: Kimble, G. H. T. and Good, Dorothy (eds.), *Geography of the Northlands.* N. Y. American Geographical Society, 1955. p. 58-83. 9 figs., 10 refs.) DWB—The dynamic climatology of the entire Arctic (pressure, general circulation, air masses, cyclones and anticyclones), the physical climatology (precipitation, temperature, fog and clouds) and special aspects of Arctic climatology (such as windchill, permafrost, climate and vegetation and climatic change) are discussed in an analytical manner and illustrated by a number of weather charts and a windchill (chillgram) chart for Churchill and Senneterre, Quebec. *Subject Headings:* 1. Synoptic climatology of Arctic 2. Climate of Arctic 3. Arctic.—M.R.

PART III. REVIEWS OF RECENT IMPORTANT METEOROLOGICAL MATERIAL, AND METEOROLOGICAL ARTICLES APPEARING IN RECENTLY ISSUED PUBLICATIONS

Note: The references to reviews of new books or monographs and the contents of periodicals included in this section are for information only and will not be listed in the monthly indexes until abstracted. When material is furnished in advance of publication, the pagination may be omitted.

A. REVIEWS OF IMPORTANT METEOROLOGICAL MATERIAL.

- Advances in Applied Mechanics**, Vol. 3, ed. by Richard von Mises and Theodore von Kármán. N. Y. Academic Press, 1955. 324 p. Price, \$9.00. Review by S. K. Ghaswala in *Science and Culture*, Calcutta, 21(1):47, July 1955.
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